

DISA INFORMATION SERVICES MARKET

INPUT

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**Federal Information Systems and Services  
Program (FISSP)**

***DISA Information Services Market***

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## Abstract

Information systems spending at the Defense Information Systems Agency (DISA) is expected to grow from \$1.5 billion in FY 1991 to \$2.0 billion in FY 1996, primarily as a result of new mission responsibilities. The most significant outlays have been and will continue to be for communications and network services, over half of DISA's budget.

This report discusses DCA's new mission that led to being renamed DISA; its impact on the organization and information systems; and its growing influence over DoD information systems in response to the CIM initiative.

The *DISA Information Services Market* report offers insight to vendors to assist them in establishing or revising marketing directed at the agency.

This report contains 108 pages, including 32 exhibits.

DISA INFORMATION  
SERVICES MARKET

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AUTHOR

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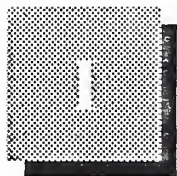
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## Introduction

The *DISA Information Services Market* is a new INPUT report. The Defense Communications Agency was recently renamed the Defense Information Systems Agency (DISA) to reflect its expanded mission functions within the DoD. This report has been prepared as a result of DISA's emerging dominance over all Defense information and telecommunications systems, and its effect on vendor sales activities.

DISA is evolving to provide full information processing services to all DoD entities. The DoD is striving to integrate and develop interpretable systems among its components while economic resources continue to decline. Through the Corporate Information Management plan (CIM), the DoD will standardize business practices and ADP operations DoD-wide.

The *DISA Information Services Market* is presented in INPUT's issue paper format. It covers DISA's new organizational structure and its resulting implications, market issues, and information systems trends. For these reasons it is shorter than regular INPUT reports.

This report is intended to give INPUT clients a fundamental understanding of the mission changes of the agency. The report focuses on DISA's role as "the information systems agency" in the new business-oriented DoD.

This paper was prepared as part of INPUT's Federal Information Systems and Services Program (FISSP). Market analyses issued through this program are designed to assist INPUT's U.S. industrial clients in planning how to satisfy future federal government needs for computer-based information systems and services.

### A

#### Scope

The period of interest for this report is GFY 1992-1996, although the forecast includes GFY 1991. On-site and telephone interviews were conducted with several agency personnel, although a formal questionnaire was not developed.

For the purposes of this study, INPUT defines the DISA information services market as encompassing the following categories of vendor products and services (see Appendix A for detailed explanations of each category):

- Professional Services
- Systems Operations
- Systems Integration
- Network Services
- Software Products
- Turnkey Systems
- Hardware

## B

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### Methodology

The OMB/GSA Five-Year Plan analysis for the INPUT Procurement Analysis Report was reviewed for programs to be initiated during the GFY 1992-1996 period. INPUT also researched other DISA planning documents to identify significant spending changes during the forecast period.

The report's findings are based on research and analysis of several sources, including:

- OMB/GSA/NIST Five-Year Information Technology Plans for 1992-1996 and available agency plans
- Fifth Annual DCA Forecast to Industry—March, 1991
- Interviews with DISA officials
- Various agency documents
- Various secondary research sources
- INPUT's Procurement Analysis Reports (PARS)

## C

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### Report Organization

The report consists of four additional sections:

- Chapter II is an Executive Overview describing the major points and findings in this report.

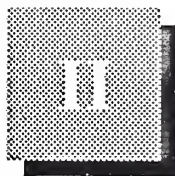
- Chapter III focuses on DISA's mission and organization, the acquisition process, INPUT's forecast and major contractor opportunities.
- Chapter IV discusses leading vendors and factors impacting this market.
- Chapter V presents the major initiatives under way at the agency.

Several appendixes are also provided:

- Definitions
- Glossary of Acronyms
- Policies, Regulations and Standards
- Related INPUT Reports
- About INPUT, a description of INPUT and its programs and services







## Executive Overview

### A

#### Agency Mission

Founded in 1960, the Defense Communications Agency developed from managing communications to providing full information processing services for all types of users. To more accurately reflect its new role, the agency changed its name to the Defense Information Systems Agency on June 25, 1991. Broadened mission responsibilities are listed in Exhibit II-1.

#### EXHIBIT II-1

##### Broadened Mission Responsibilities

- Support to the Joint Chiefs and OSD
- Corporate Information Management (CIM)
- Worldwide Military Command and Control System
- Tactical IS Standards Research and Interoperability
- White House Information Systems
- IS and Communications for the National Commands

The DoD has initiated a top down business management approach to standardize business practices and ADP operations across all DoD organizations. Accountability for resource consolidation, systems development, standards and communications are now centralized under DISA.

DISA is viewed as a combat support agency for the DoD commands and the Joint Staff. It provides high-level technical planning, architectural studies and acquisition support. As DISA's duties evolved to support OSD, it acquired responsibility for CIM and WWMCCS.

The Center for Standards within JTC3A centralizes standards management within DISA and the DoD. The Center for Information Management provides guidance to JTC3A on standards compatibility and architectures.

DISA's expanded mission functions also include responsibility for all White House information systems needs. Previously, support was limited to telecommunications services.

Planning, development and support of command, control, and communications (C3) and information systems used by the National Command Authorities for all peacetime and war activities fall under DISA's domain.

## B

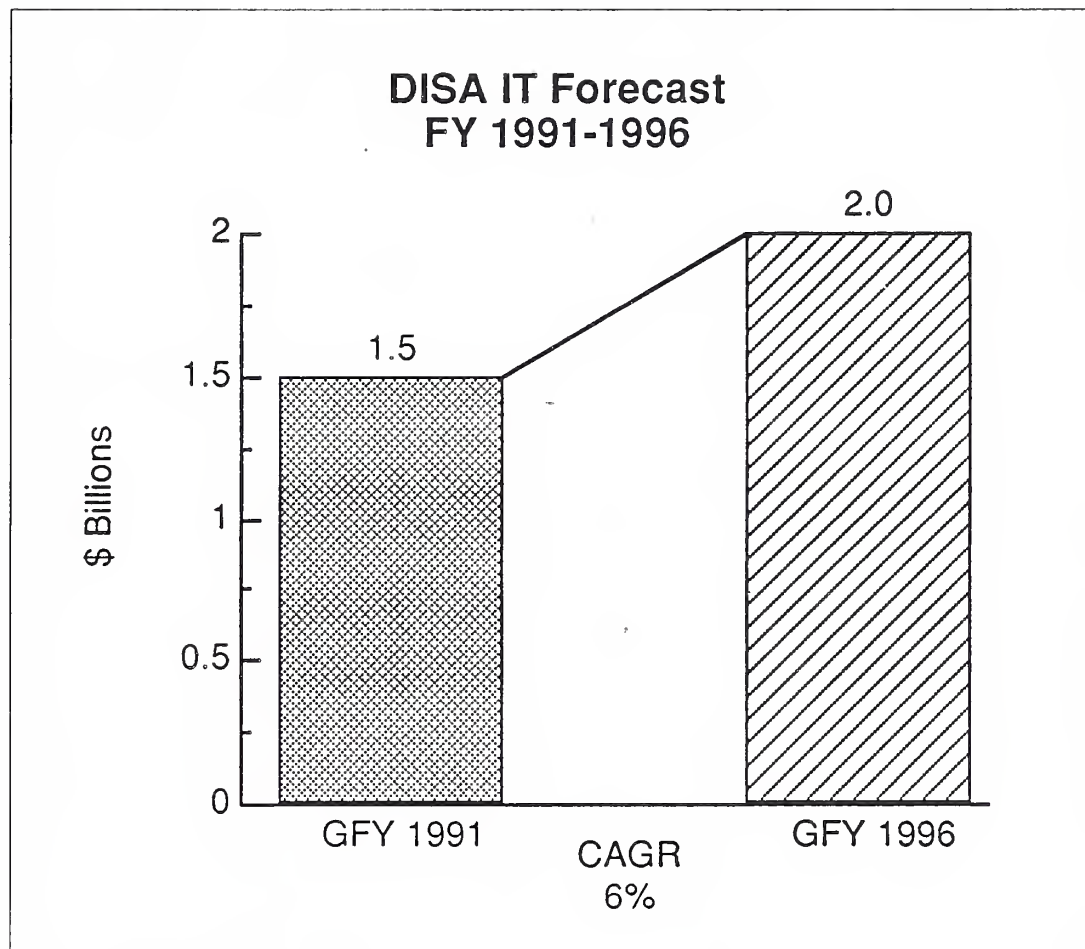
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### Market Forecast

DISA's earlier activities as DCA were characterized by relatively slow growth of the IT budget. The actual expenditures for FY 1987 to FY 1990 grew at a CAGR of only 4%. The most significant outlay has been, and will continue to be for communications and network services, constituting more than 55% of the budget.

The additional responsibilities given in 1991 to DCA that resulted in the change to DISA are expected to improve the agency's budget and the sizes of programs it will oversee for DoD. Exhibit II-2 shows that DISA's IT expenditures will grow from \$1.5 billion in FY 1991 to \$2.0 billion in FY 1996, at a CAGR of 6%. In addition, DISA is expected to play a key part in more than \$3 billion in IT acquisitions for the defense departments and agencies, as DoD reorganizes for a slimmer military, but more efficient organization.

EXHIBIT II-2



## C

### The Center for Information Management (CIM)

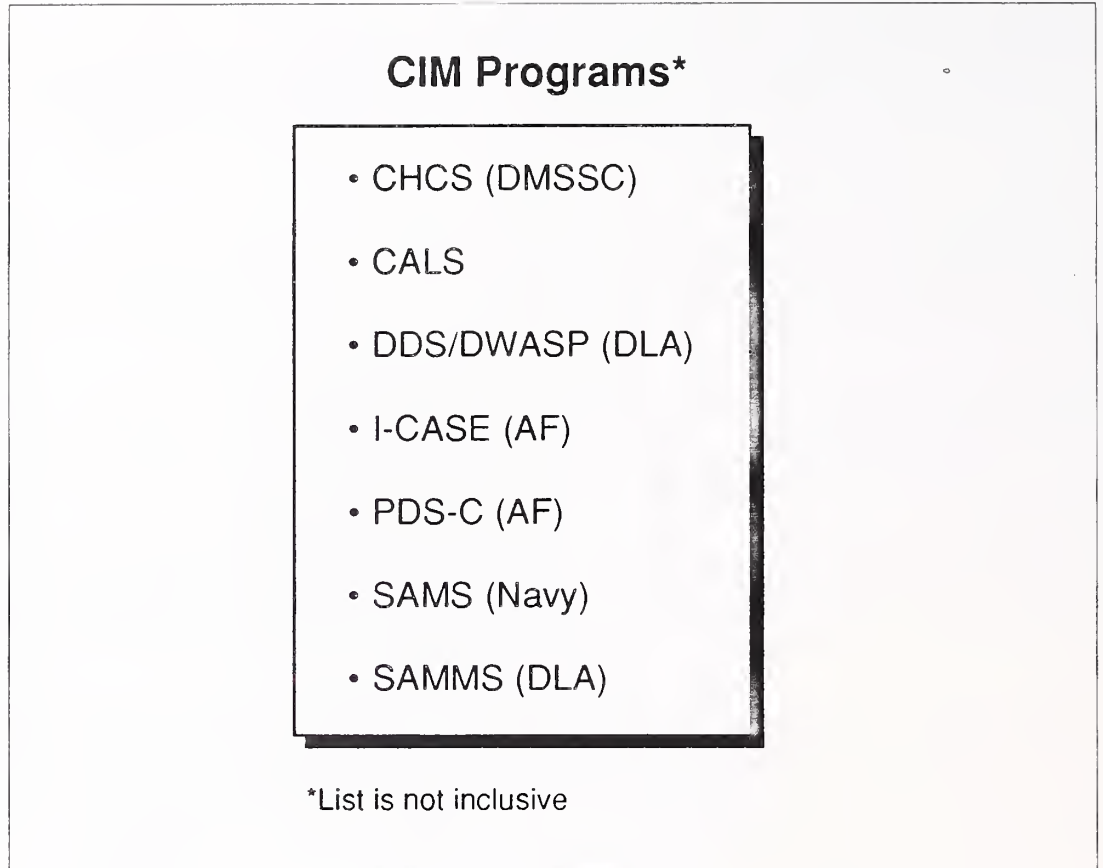
Implementation of the Pentagon's Corporate Information Management initiative (also known as CIM) was transferred to DISA because of its emerging role as the DoD information systems supplier. DISA created the Center for Information Management to carry out CIM's plans and control information system development within the DoD. CIM's objectives are:

- Evaluate and consolidate business practices
- Use IS to support business functions

The DoD is standardizing business function information systems to ensure systems interoperability and consistent data across the services.

Some of the major programs identified as CIM initiatives are listed in Exhibit II-3.

## EXHIBIT II-3



The Composite Health Care System (CHS) sponsored by the Defense Medical Systems Support Center is one of twelve medical programs designated as interim standard systems. CIM has taken over management of the Computer-aided Acquisition and Logistics Support (CALS) initiative. Consolidation of many CALS programs across the services is expected.

A Defense Management Review Decision directed the consolidation of all DoD depots under a single system managed by DLA. DoD intends to deploy a new worldwide system by October 1992. A prototype Defense Distribution System (DDS) is now being tested by DLA. The Integrated Computer-Aided Software Engineering (I-CASE) procurement sponsored by the Air Force has an estimated value of \$25 million. I-CASE will supply a software production and maintenance environment supporting POSIX platforms within the DoD.

The Air Force Personnel Data System-Civilian (PDS-C) has become the designated interim standard system for civilian personnel DoD-wide. PDS-C was recently renamed the Defense Civilian Personnel Data System (DCPDS).



SAMS, the Navy's Shipboard Non-Tactical ADP Program (SNAP) Automated Medical System is also one of the standard medical systems designated by CIM. The scope of DLA's SAMMS (Standard Automated Materiel Management System) is under evaluation by CIM planners.

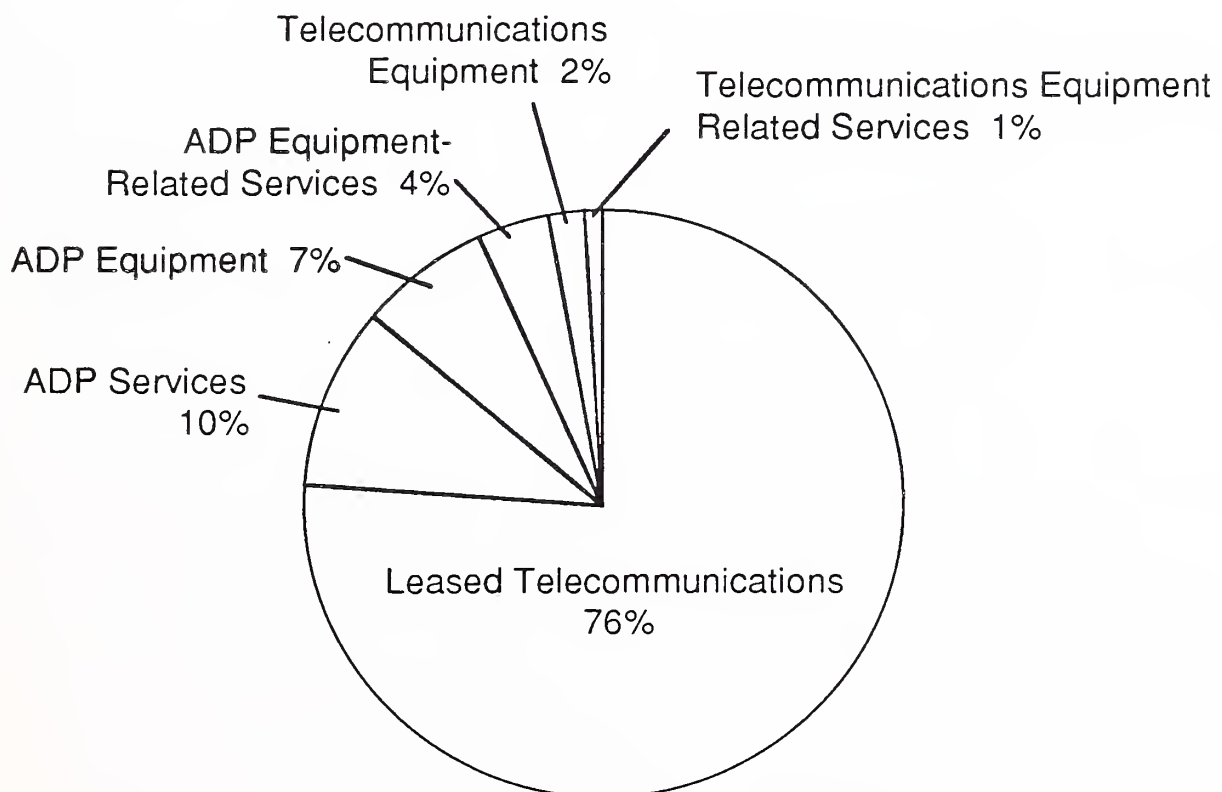
## D

### Contracting History

It is not surprising that the majority of DISA's contract obligations over the past four years were for leased telecommunications services. The Defense Information Systems Agency has been the lead C3I agency within the DoD, and operates the Defense Communications System. As shown in Exhibit II-4, leased telecommunications accounted for 76% of the market at DISA.

EXHIBIT II-4

#### Contract Obligations by Service Category FY 1987-FY 1990



Source: Pinpoint, 9/91

**E****Factors Impacting the Market**

The same factors are impacting all DoD agencies, but with varying impact. Factors having the most influence on DISA are listed in Exhibit II-5.

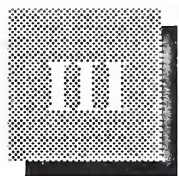
EXHIBIT II-5

**Factors Impacting the Market**

- Budget cuts
- Standards
- DoD function consolidation
- Desert Shield/Desert Storm

The DoD is forced to do more with less in response to federal budget cuts. Therefore DISA's systems must be standards-compliant to allow for portability and interoperability. Through the Corporate Information Management (CIM) Plan, the DoD has charged DISA with consolidating resources and improving the efficient use of information technology across the DoD. The systems that DISA influences for other agencies must also adhere to these standards to enable common use among the services. CIM planners will rely on contractors to help the DoD use technology to get the same or improved output with less input.

The chief lesson learned from Operation Desert Shield/Desert Storm is that DoD information systems cannot operate without the assistance of industry. The DoD depends on contractors to supply technical expertise and research in new technology to respond to modern warfare needs.



## Agency Overview

This chapter presents the evolution of the Defense Communications Agency (DCA) into its present role in the DoD as the Defense Information Systems Agency (DISA). DISA's mission responsibilities, functional organization and acquisition process are discussed. Major programs sponsored by DISA, including CIM, are presented in more detail.

### A

#### Evolution and Mission

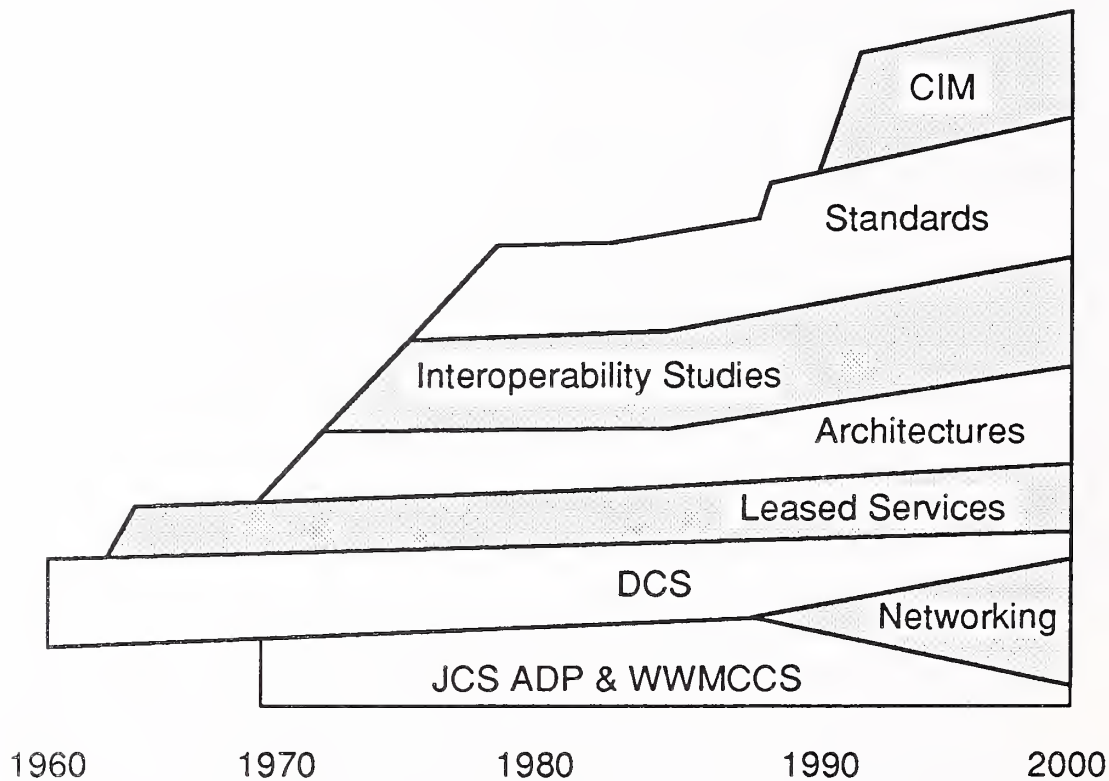
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The Defense Information Systems Agency was established thirty years ago as the Defense Communications Agency. Its charter included consolidated management to reduce costs and improve efficiency of specific communications and communications-related activities performed by the Army, Navy and Air Force. Over the years, additional responsibilities have been added, as portrayed in Exhibit III-1.

The broad mission of the Defense Information Systems Agency has traditionally included responsibility for planning, developing, testing, engineering, implementing, operating and maintaining joint information systems across federal agencies that support national security. Specifically, DISA has supported the telecommunications functions of the National Communications System (NCS). Under the name of the Defense Communications Agency, the agency functioned primarily as a communications organization. Recently added responsibilities have thrust the agency into the role of providing full information processing services for all types of users. On June 25, 1991, DCA was renamed the Defense Information Systems Agency (DISA), reflecting the new role of the agency. The new organization has the following broadened mission responsibilities:

- Support of the Joint Chiefs and OSD
- Corporate Information Management System (CIM)
- Worldwide Military Command and Control System (WWMCCS)
- Tactical IS standards research and interoperability
- White House information systems
- IS and communications for national commands

## EXHIBIT III-1

**DISA (DCA) Mission Evolution**

Source: Prepared statement of Rear Admiral A.F. Campbell, USN, Defense Communications Agency, before the subcommittee on Strategic Forces and Nuclear Deterrence, Senate Armed Services Committee, May 23, 1991.

As budget resources decline, the DoD is striving to integrate and develop interoperable systems among its components. A top-down approach is being employed for information management by consolidating many functions within DISA. The agency's objective is to standardize business practices and ADP operations across all DoD agencies.



DISA is viewed as a combat support agency for the DoD commands and the Joint Staff. It provides high-level technical planning, architectural studies and acquisition support. A current project is DoD's Anti-Drug Network (ADNET). ADNET is a secure, interoperable C3I network. As DISA's duties evolved to support OSD, it acquired the responsibility for WWMCCS and CIM. A Center for Information Management has also been formed within DISA to implement CIM DoD-wide.

The agency is tasked with developing tactical information systems standards and assuring their interoperability within DoD and other federal agencies. This includes WWMCCS, DCS, theater and tactical C2 systems, the North Atlantic Treaty Organization, and allied C3 systems.

Originally, DISA was held accountable for integrating White House telecommunications services in Washington and at trip sites worldwide. DISA's expanded mission functions encompass responsibility for all White House information systems.

DISA's mission now includes planning, development and support of command, control, and communications (C3), and information systems used by the National Command Authorities (NCA) for all peacetime and war activities. Throughout the 1990s, DISA will concentrate on four key information systems areas:

- Standards
- Testing
- Security
- Information management/services

Standards involvement will intensify as DoD interoperability demands increase. The Center for Standards within JTC3A centralizes standards management within DISA and for the DoD. JTC3A hopes to influence commercially available products so they incorporate DoD requirements.

Testing of commercially available off-the-shelf products to ensure standards compatibility and interoperability with other DoD systems will also be performed.

Information security is becoming increasingly critical to defense-wide information systems. The lack of security in LAN-based systems is causing DoD officials grave concern. All DoD information is now considered classified, including basic personnel data. Steps must now be taken to ensure that personnel, logistics, medical and financial data cannot be accessed by unauthorized personnel. Since DISA has evolved as the lead DoD agency for information systems, associated security responsibilities—especially in the C2 area—naturally fall into its domain.



The management by DISA of complex information systems across the DoD will be aided by automated management systems, including commercially developed systems when appropriate.

## B

### Organization

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The Defense Information Systems Agency consists of military personnel from all of the services, and civilian staffers. DISA is dedicated to providing quality products and services to its customers within the DoD and some civil agencies. The new functional organization shown in Exhibit III-2 is the backbone of the agency. The relationships of the Special Staff with the Director are determined by law, regulations, or otherwise. Services provided by the support staff are used by all agency components. The mission staffs support specific mission functions and report to the Director.

DISA takes orders from Paul Strassmann, Director of Defense Information, within the Office of the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)). The new Director of DISA is Lieutenant General Alonzo E. Short, nominated in June 1991 to replace Lieutenant General Thurmond D. Rodgers. All functional organizations officially report to LTG Short's office (AA).

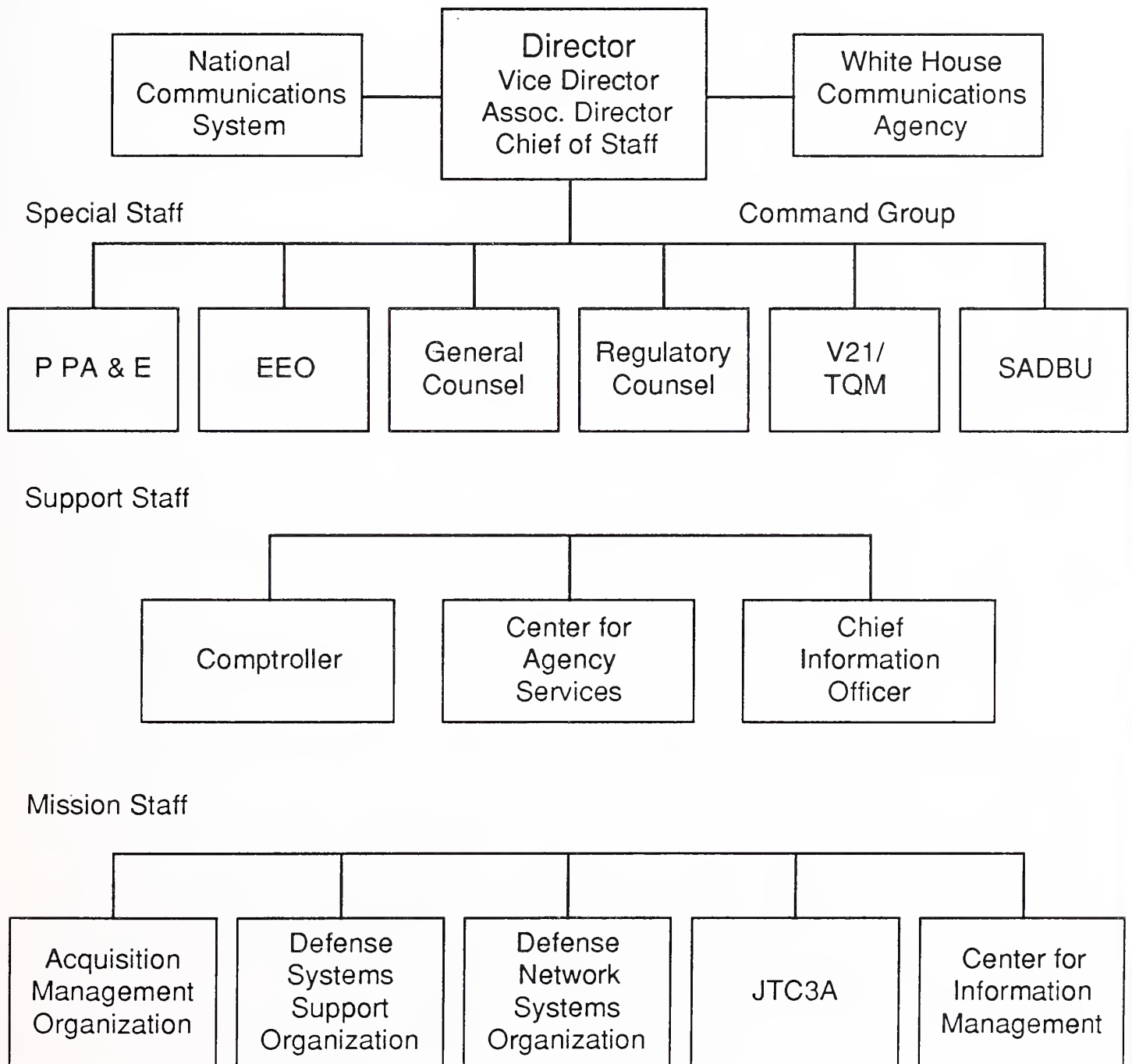
The National Communications System (NCS) is a federal interagency organization assigned national security and emergency preparedness telecommunications responsibilities. It was established in 1963 in response to the communications problems associated with the Cuban missile crisis. Comprised of 23 federal departments and agencies, NCS provides an organized structure to allow for the overall management and coordination of the telecommunications assets of the federal government. The NCS is responsible for developing plans to ensure continuity of the nation's telecommunications capabilities during and after periods of crisis.

The White House Communications Agency (WHCA) is tasked with providing all telecommunications and information systems support to the President, Vice President, White House Senior Staff, National Security Council, and the U.S. Secret Service, in Washington and on trips worldwide. White House systems are currently being decentralized and downsized to microcomputer systems.

The Center for Agency Services provides logistics policy, administration, education, training, security, personnel management, and library services. Installation and facilities management support operations are also performed by the Center for DISA offices worldwide.

## EXHIBIT III-2

## Defense Information Systems Agency Organizational Chart



Source: DISA

Effective Date: 1 April 1991

DISA's information management policy and financial resources for internal systems are controlled by the Chief Information Officer, a position only recently created. This office focuses on guidance and policy. Operational functions are performed by the Defense Systems Support Organization (DSSO).

## **1. Acquisition Management Directorate**

The Acquisition Management Directorate (AMD) consolidates DISA acquisitions, manages the procurement process, and provides contract administration services. AMD is active in promoting small- and disadvantaged-business opportunities. Small-business awards totalled over \$111 million in 1990. The directorate is comprised of three major components:

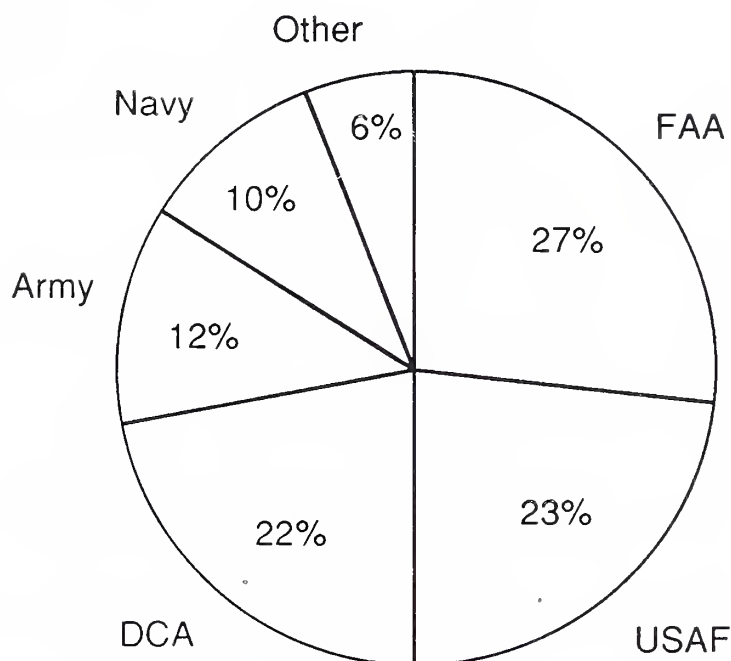
- Acquisition Management Office (AMO)
- Telecommunications Management Services Office (TMSO)
- Defense Commercial Communications Office (DECCO)

The Acquisition Management Office (AMO), a headquarters contracting office, acquires materials and services for all DISA entities. The value of all contracts awarded in 1990 was \$199.2 million.

The Telecommunications Management Services Office (TMSO) and the Defense Commercial Communications Office (DECCO) conduct communications engineering and acquisitions for the Defense Communications System (DCS), the military, and other federal agencies. TMSO primarily functions as an interface to DISA customers on technical matters, and DECCO assumes the contracting activity role. One major agency supported by DECCO is the Federal Aviation Administration. DECCO, an industrially funded field activity, provides acquisition support services from its home office at Scott Air Force Base, IL; Elmendorf Air Force Base, Alaska; Sembach Air Base, Germany, and Ft. Shafter, Hawaii.

DECCO is responsible for administering approximately \$1.2 billion in contract obligations, or approximately 90,000 contracts per year. As shown in Exhibit III-3, DECCO's largest customer during FY 1990 was the FAA, handling 27% of the contracts administered by the agency. Air Force contracts accounted for 23%, and DCA (DISA) contracts 22%. The remaining 28% of the contracts processed by DECCO were sponsored by the Army, Navy and other federal agencies.

## EXHIBIT III-3

**DECCO Customer Base  
FY 1990 Contracts**

Source: The Defense Communications Agency FY 1990 Annual Report

**2. DSSO**

The Defense Systems Support Organization (DSSO) was previously known as the Joint Data Systems Support Center (JDSSC). Its diverse mission includes information needs analysis, design, development, testing, deployment, and operations and maintenance of information systems in support of the Joint Chiefs of Staff, the Office of the Secretary of Defense, and the Unified and Specified Commands. Technical and operational support for WWMCCS, the NMCC, the NMCS, the Joint Staff information system, and DISA's internal information systems are performed by DSSO. DSSO is a field activity with five locations within the national capitol region.



### 3. DNSO

The Defense Network Systems Organization (DNSO) satisfies the communications requirements of the warfighting Commanders in Chief (CINCs). The Counter-Drug Telecommunications Integration Office (CDTIO) reports to DNSO. Systems planning, systems engineering, prototyping, requirements analysis and acquisitions management services are provided to law enforcement agencies performing counternarcotics activities. Most of DEA's systems requirements analyses and acquisitions are performed by CDTIO.

DNSO, previously known as the Defense Communications System Organization, was renamed to complement its functional role and DISA's broadened mission. DNSO strives to provide to its military customers low-cost information services that take advantage of emerging technologies, while keeping in mind future requirements. The Defense Information System (DIS) Network is managed by DNSO. It also operates the Defense Satellite Communications System Network (DSCSN), the Defense Switched Network (DSN), the Defense Data Network (DDN), the Defense Message System (DMS), and the Nationwide Emergency Telecommunications Service (NETS).

### 4. JTC3A

The Joint Tactical Command, Control and Communications Agency (JTC3A) has just absorbed the Center for Command, Control and Communications (C4S). JTC3A's mission had included the responsibility for interoperability of tactical command, control, communications and intelligence systems. It now incorporates C3 systems engineering functions. To ensure interoperability, JTC3A develops interface standards and architectures, performs testing and certification functions, and performs interoperability assessments on joint or combined systems. JTC3A has become the standards enforcement agency within the federal government. JTC3A personnel are located in Fort Monmouth, New Jersey; Fort Huachuca, Arizona and Reston, Virginia. DISA has emerged as the lead federal agency responsible for C3 integration. JTC3A plays a major role in improving drug war communications and information systems.

### 5. CIM

The Center for Information Management (CIM) was recently created within DISA to implement the Pentagon's Corporate Information Management initiative (also known as CIM). Responsibility for implementing CIM was transferred to DISA because of its emerging role as the resource utility supplying all information systems needs in support of the National Command Authorities. The Center will also perform information management and systems engineering activities for the Defense Information System Network (DISN). The current Defense Communications System



(DCS) consists of separate programs. DCS will be moved to the DISN by the year 2000. DISN is envisioned as the network of networks, incorporating all voice, data and video networks into one system. DISN components will be based on interoperability standards.

CIM's objectives within the DoD are:

- Evaluate and consolidate business practices
- Use IS to support business functions

The CIM effort is intended to eliminate duplicate information systems and their associated maintenance across the Armed Forces. The DoD is standardizing business function information systems to ensure systems interoperability and consistent data across the services. Creation of the Center is viewed as an attempt to exercise control over information systems development. Currently, the Pentagon estimates that software costs will jump from \$15 billion in 1992 to \$45 billion by 2008. Increased purchases of off-the-shelf software, reuse of existing Ada code, and more dependence on CASE tools should lower software development costs significantly. The Pentagon believes that CIM will save the federal government approximately \$35 billion over the next five years.

Functional areas currently targeted by the CIM Plan are warehousing, civilian payroll, contract payment, financial operations, government furnished material, material management, medical civilian personnel and food service, environment, contract management, and procurement. Since its creation in 1989, less than 20 systems of about 400 have been identified as interim standard systems under the CIM plan.

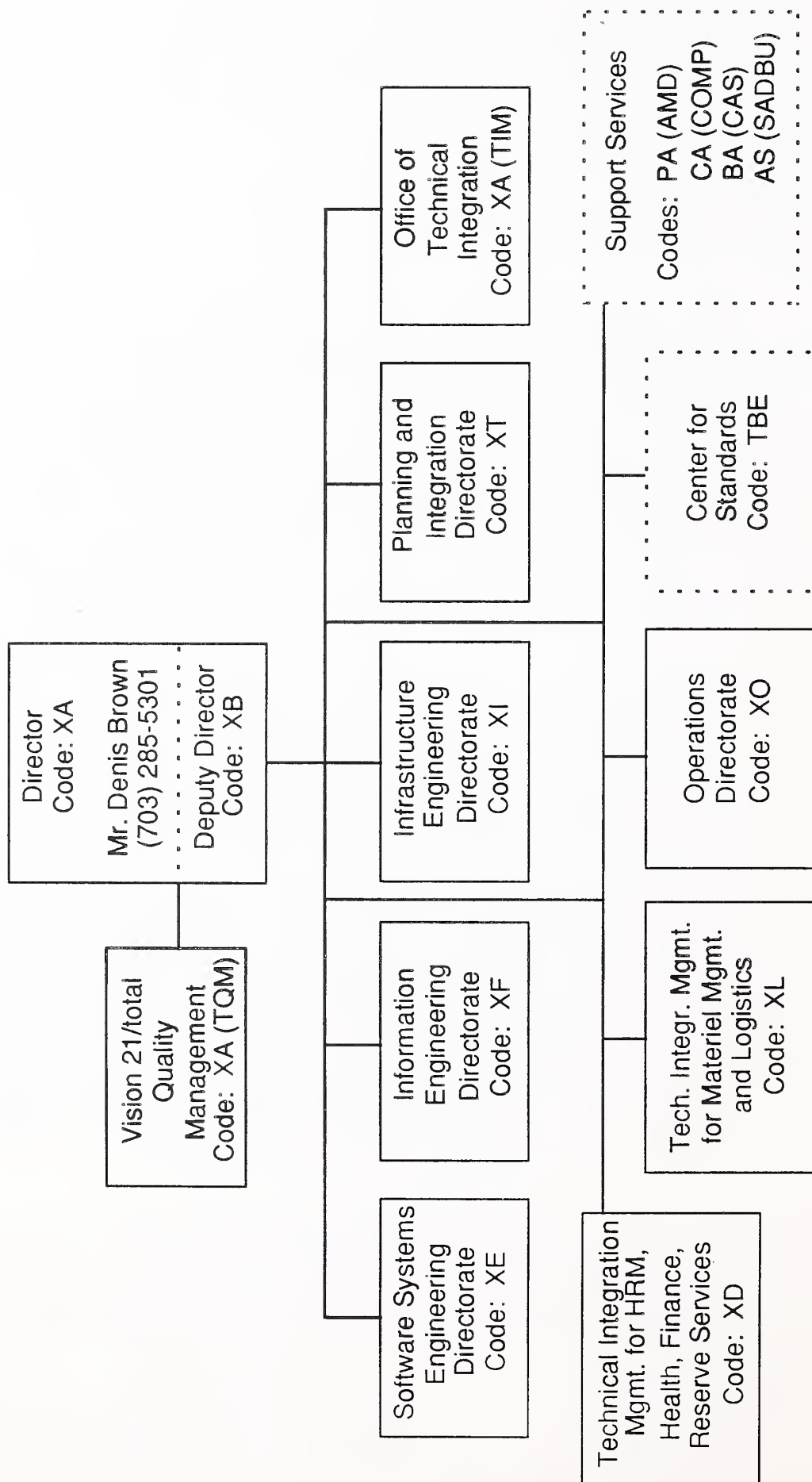
The Center for Information Management's proposed organizational structure is shown in Exhibit III-4. The Center will function as the technical implementation unit of Paul Strassmann's plans for CIM. Strassmann is responsible for CIM policy and implementation. DISA is accountable for all CIM technical support functions. CIM does not include embedded weapons systems at this time. Approximately 75% of the Center's work will be directed at non-DISA-specific systems. Currently located in Tyson's Corner, Virginia, the Center will grow to 400-500 employees by December, 1992. Once the Center is operational, the Army plans to transfer data standardization management to DISA.

Reporting to the Software Systems Engineering Directorate are the Information Systems Architecture Division, Software Engineering Effectiveness Division, Software Technical Integration Division, Software Life Cycle Support Division, Software Reuse Project Office, and the I-CASE Liaison Division.

The Information Engineering Directorate has responsibility for information architecture, functional analysis and modeling, business case analysis, data administration operations, and combat mission analysis.

## EXHIBIT III-4

# Center for Information Management Organization Chart



as of 26 November 1991

Source: Director of Defense Information

Within the Infrastructure Engineering Directorate are the Technical Architecture Division, the Utility Engineering Division, the Defense Automation Resource Information Center, and the Premises Equipment and Performance Assessment Divisions.

The Plans and Integration Directorate's duties include planning, integration, customer support, acquisition, and administration.

Medical, material management, and CALS systems responsibilities fall under the domain of the Office of Technical Integration. The responsibility for Technical Integration Management for Human Resources, Health, Finance and Reserve Services, and for Materiel Management and Logistics were being defined at the writing of this report.

The CIM office provides guidance on standards compatibility and architectures to JTC3A's Center for Standards. The Center for Standards is committed to GOSIP. NIST recently designated JTC3A as a GOSIP test center.

Support services needed to implement CIM functions are performed by the staffs in the four organizations handling common support needs for all of DISA.

## C

### Acquisition Process

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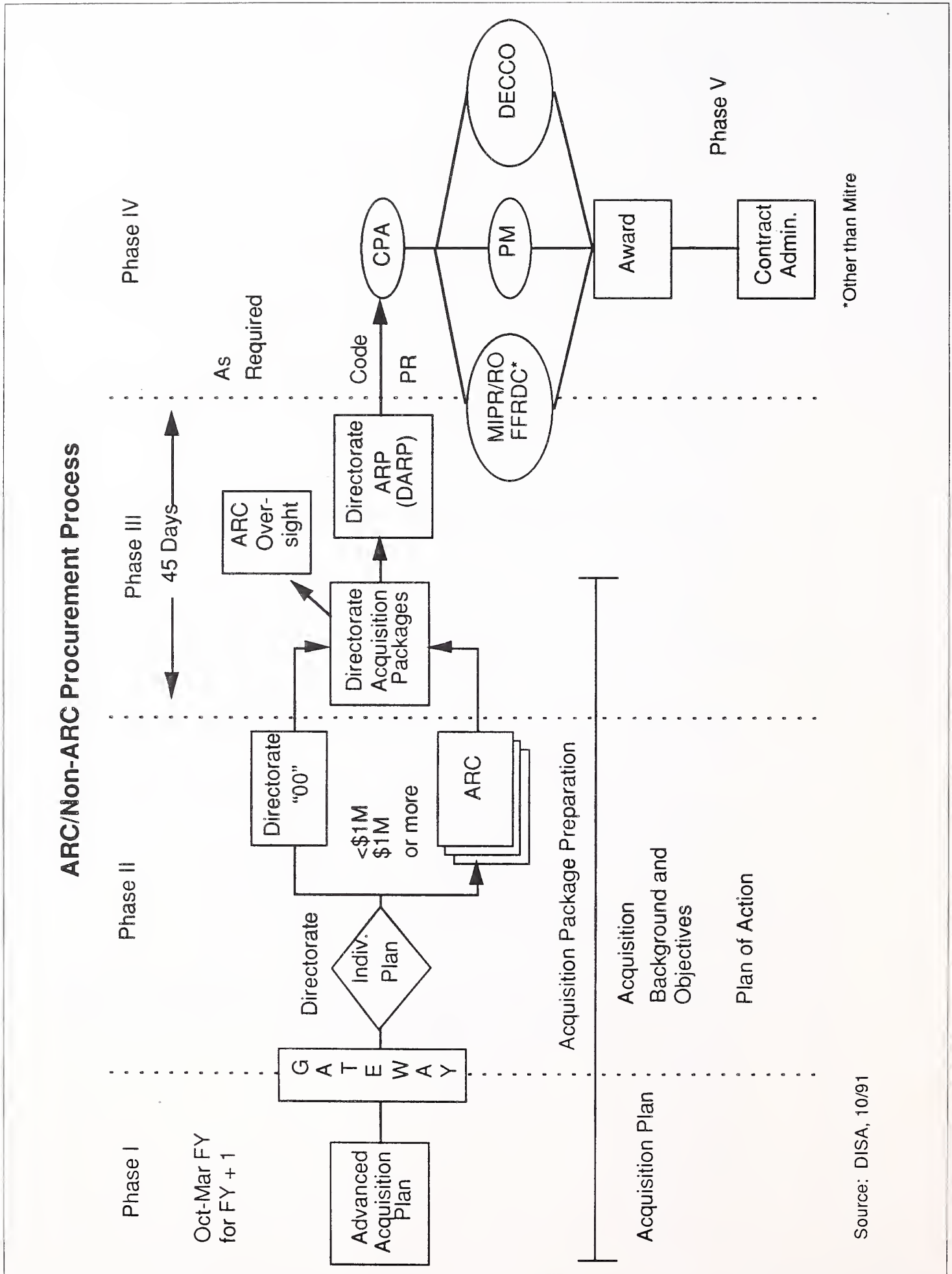
For DISA entities, information systems and services are acquired through one of the following processes:

- Acquisition Review Council/Non-Acquisition Review Council (ARC/Non-ARC)
- Federal Information Processing Resources (FIPR)

#### 1. ARC/Non-ARC Procurement Process

Procurements intended to follow the Acquisition Review Council/Non-Acquisition Review Council (ARC/Non-ARC) process include technical and support services, telecommunications (network services), and operations and maintenance. The ARC/Non-ARC process is illustrated in Exhibit III-5.

EXHIBIT III-5





Phase I of this process starts with the requesting organization developing an Advanced Acquisition Plan for each acquisition, regardless of cost. The plan is developed at least a year and a half prior to the intended implementation of a contract. At the Gateway, formal involvement by acquisitions and oversight personnel begins. During Phase II, the acquisition package is developed. If an acquisition's life cycle cost is estimated to be under \$1 million, it can be approved at the directorate level. Costs over the \$1 million threshold must pass through the Acquisition Review Council.

Upon completing formal review and approval during Phase III, the acquisition package passes to the comptroller's office in Phase IV. Next, the acquisition is either assigned to DECCO to perform acquisition services, or routed to the accounting department if the services will be procured from another agency.

## **2. FIPR Acquisition Process**

Hardware, software and maintenance services are procured through the Federal Information Processing Resources (FIPR) process (see Exhibit III-6). The FIPR process mirrors the ARC/Non-ARC process except during Phase III. Directorate level, senior IRM officials, and contract management personnel review and approve all acquisitions. Those estimated to exceed \$100,000 must also be reviewed by the Competition Advocate's office.

Acquisitions estimated to cost at least \$25 million in any given year, or \$100 million over the life cycle of the system, must also obtain MAISRC approval from the DoD.

## **D**

### **Market Forecast**

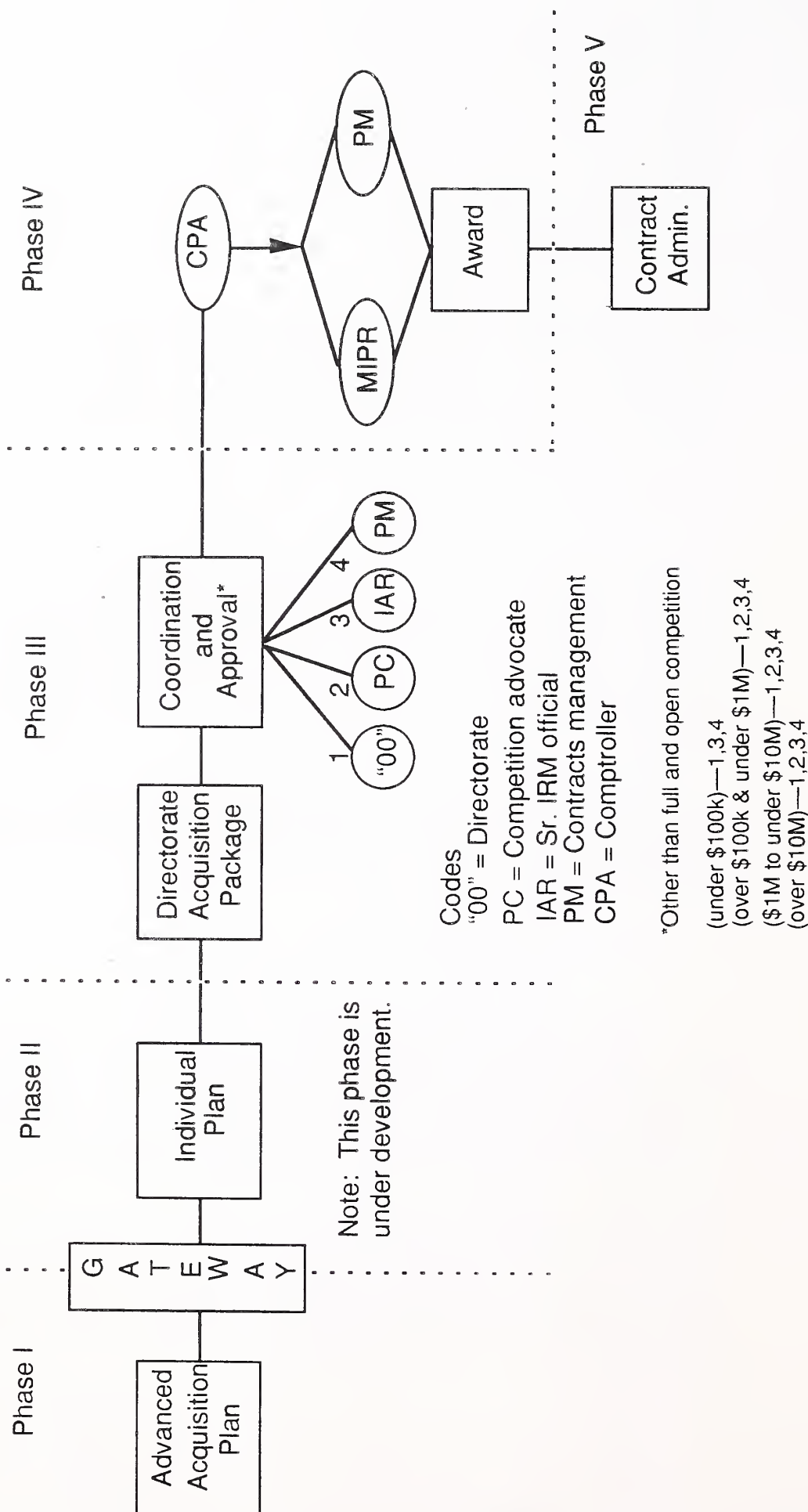
The FY 1992 budget request for DISA was based on the earlier responsibilities of the Defense Communications Agency, as was the FY 1991 budget. The first two years of this forecast are therefore based on DCA missions, and the FY 1993 to FY 1996 span is an estimate of the effect on expenditures of the additional duties discussed earlier in this section.

DISA/DCA expenditures are expected to grow from \$1,505 million in FY 1991 to \$1,979 million in FY 1996 at a CAGR of 6%. This level of expenditure makes DISA the leader in IT expenditures by defense agencies, excluding the military departments, by a wide margin. The nearest agency, DLA, spent only \$380 million in FY 1991.



## EXHIBIT III-6

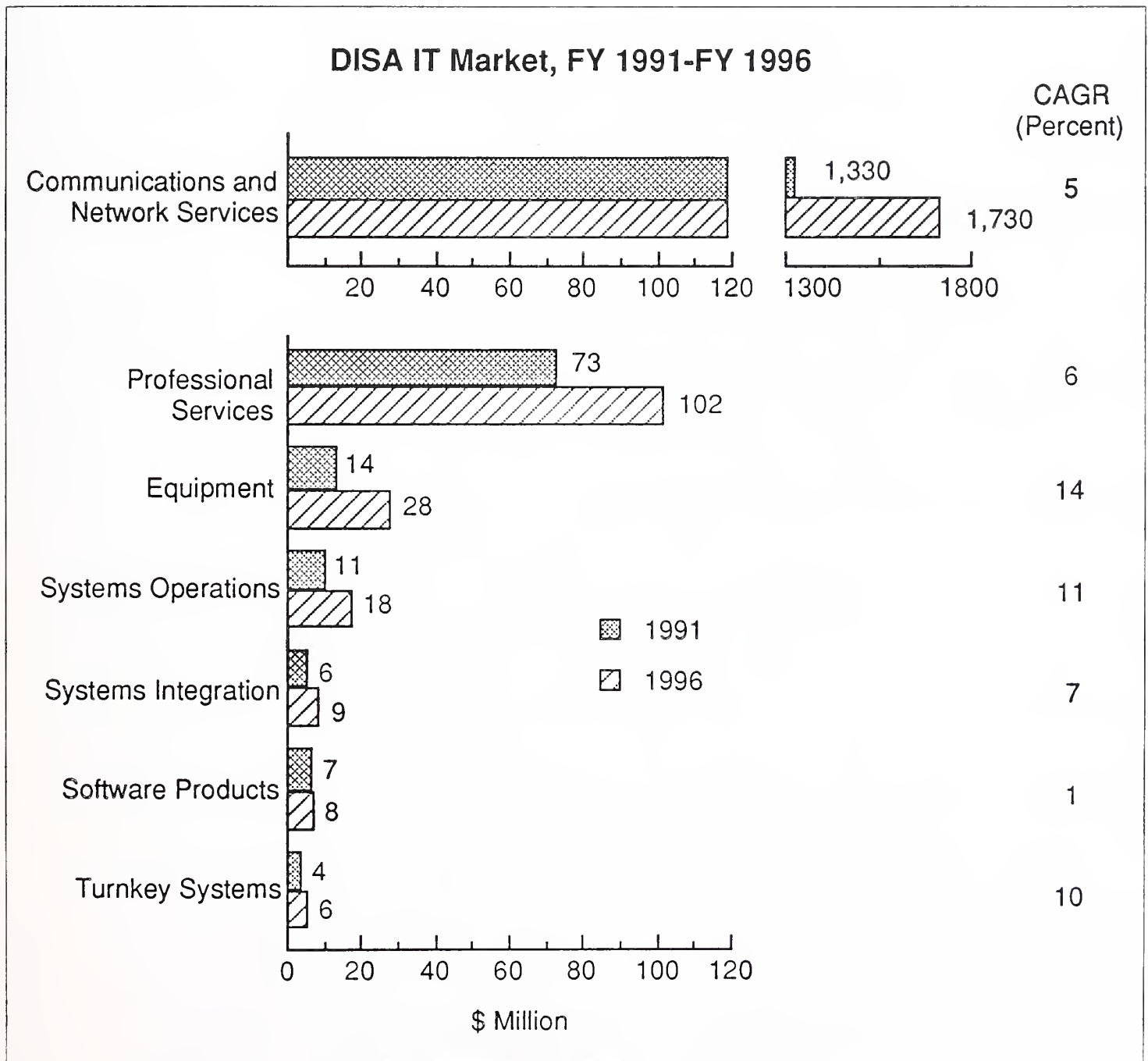
# FIPR Acquisition Process (Includes ADP Hardware, Software, Maintenance, Etc.)



Source: DISA, 10/91

The most significant delivery mode will be communications and network services, as shown in Exhibit III-7, growing from \$1,330 million in FY 1991 to \$1,730 million in FY 1996 at a CAGR of 5%. DISA provides most of the strategic and administrative communications services for all DoD departments and agencies via contracts with commercial carriers, including—to some degree at present—FTS 2000.

EXHIBIT III-7



The remainder of the IT expenditures makes DISA the second highest spender, just below DLA. Professional services is the next most significant delivery mode, growing from \$73 million to \$102 million at a CAGR of 6%. Most of these contracts run for three years, and are frequently won by a successful incumbent.

Computer and communications equipment is expected to grow at a rate of 14%, as DISA upgrades for implementation of DISN. Not included in these expenditures are outlays for computer and communications security equipment, usually acquired from a non-public budget.

DISA systems are operated and maintained by in-house personnel and technical support contractors, so outlays for systems operations are low. Similarly, the continual upgrade of DISA information processing resources results in relatively minor outlay for systems integration activities.

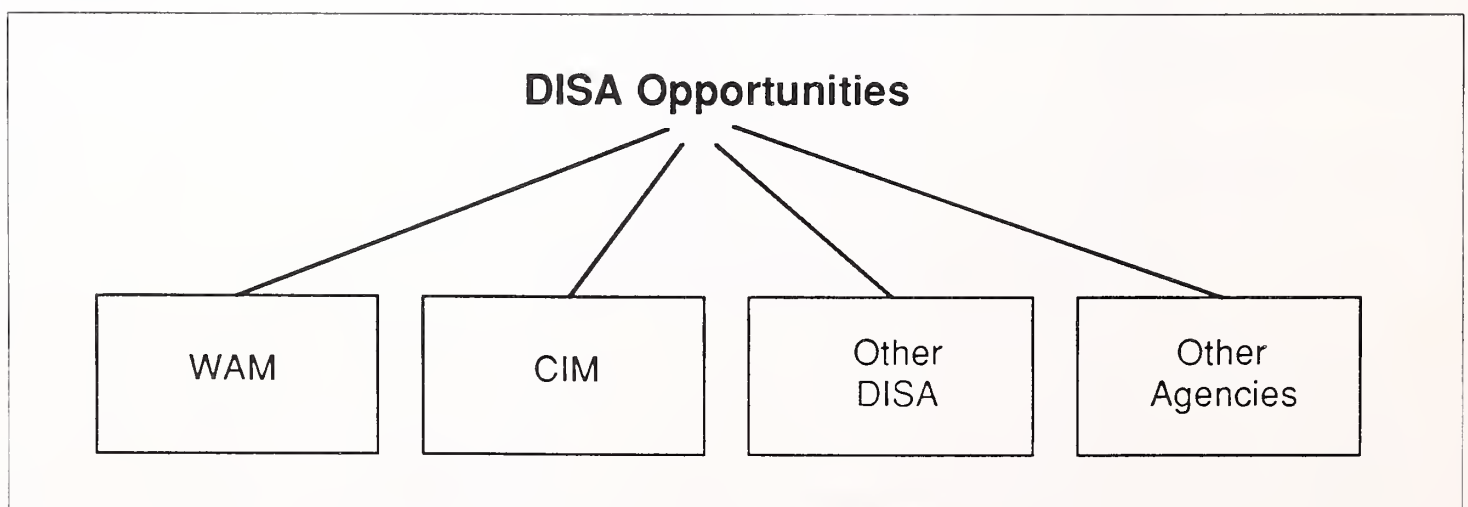
Although the IT expenditures for DISA itself may not be large except for communications and network services, the expected sizes of the programs that DISA will influence and provide contract support to will be significant. These include the CIM and CALS initiatives, JWAN, JOPES, FAATSAT and ADNET. These programs could involve outlays greater than \$3 billion by FY 1996. For this reason, contract relations with DISA can be influential in understanding the agency's acquisition practices, systems missions and future plans.

## E

### Major Information Systems Opportunities

Opportunities for contractors fall into four main areas at DISA (see Exhibit III-8). A list of specific opportunities spanning all organizations within the agency is included in Chapter V of this report.

EXHIBIT III-8



## 1. WAM

DISA directs Joint WWMCCS ADP Modernization (JWAM) strategy and budgeting. Each of the individual services has its own WAM programs responsible for contributing to the modernization of the Worldwide Military Command and Control System (WWMCCS). However, the branches report to the JWAM office. Various DISA-sponsored WAM procurements for WWMCCS and the Joint Operations Planning and Execution System (JOPES) are ongoing.

## 2. CIM

DISA's most publicized program at this writing is the Corporate Information Management (CIM) initiative. As noted earlier, CIM is now managed by DISA's Center for Information Management.

CIM's intention is to consolidate and standardize ADP systems within the DoD. Through CIM, the DoD expects to prevent and eliminate duplicate systems and acquisitions as well as ensure open system architectures.

CIM has had guidance from two areas: an Executive Level Group (ELG), comprised of outside industry executives and DoD analysts; and DoD functional groups composed of agency IRM officials who are experts in the functional areas. The functional groups examine methods to initiate standard systems across common business areas. The original eight functional groups and their executive agents include:

- Civilian Payroll (DFAS)
- Distribution Centers (DLA)
- Financial Operations (DFAS)
- Civilian Personnel (Air Force)
- Medical (four agents)
- Government Furnished Material (DFAS)
- Materiel Management (Army, Navy, Marines, Air Force, and DLA)
- Contract Management (DFAS)

The functional areas will probably require technical services from contractors for interim systems. The functional groups, now called functional areas, have been expanded to include: food service, environment, procurement contract management, and C3I. One SETA contract was recently awarded in October 1991 to Systems Research Applications. This contract is valued at \$40 million. More contracts for SETA services are anticipated.

Funding for programs within CIM's scope is estimated to be in the billions of dollars. Many believe that cost savings will only be realized as standardized migration systems are implemented throughout the DoD. Through CIM, the Defense Department intends to shave \$2.2 billion from its FY 1991-FY 1995 budgets. However, it will be difficult to measure



CIM's effectiveness because \$2.2 billion has already been removed from the DoD's budget. CIM should also be evaluated in terms of halting the acquisitions of duplicate systems within the DoD. CIM is responsible for stopping progress on the JUSTIS acquisition sponsored by the Air Force. JUSTIS requirements will be rolled into CALS requirements.

At this point, CIM planners have decided to study existing DoD systems for potential use DoD-wide. CIM Functional Information Managers (FIMs) will approve migration systems for common use. Services from vendors will be needed to support migration systems. Existing DoD systems must migrate to open systems to meet new DoD standards. The executive agent responsible for each functional area has total responsibility to recommend and implement migration systems. Any contractor opportunities will be directed by the executive agents if necessary.

To date, CIM has published one implementation plan. Paul Strassmann, the new CIM czar, is trying to speed CIM efforts to achieve promised savings amid controversy generated by GAO and CIM critics. A complete status summary and plans for 1993 and beyond will be delivered to Congress in April 1992.

Computer systems that have DoD-wide applicability are perceived by Strassmann as "gold nuggets." To date, only two are officially termed gold nuggets: the Army's Data Management Center, and the re-engineering methods and tools developed by the Army Corps of Engineers. Targeted gold nuggets include: Air Force I-CASE, Army RAPID, the Army's data dictionary, and a hardware/software leasing center.

The Army's Project RAPID (Reusable Ada Products for Information Systems Development) will be used to implement an on-line DoD software warehouse of reusable code. General purpose software code will be available for DoD users and DoD contractors as government-furnished equipment (GFE). RAPID is expected to significantly lower internal software development costs, as well as those passed on through contractors.

CIM intends to use the Army's automatic data dictionary tool. Data elements will become standard issue and are the basis of the Army's Project RAPID.

Strassmann plans to make hardware and software available through a store or leasing center to shorten the acquisition cycle for users. All classes of software and equipment would be available, including mainframes, workstations and peripherals. CIM will look to vendors to supply plug-and-play technology as refurbishable items. Existing IRM organizations will be spending less time managing procurements and more time supporting users and DISA's Center for Information Management.



Some specific programs under the CIM umbrella include:

- CHCS (DMSSC)
- DDS/DWASP (DLA)
- I-CASE (Air Force)
- PDS-C (Air Force)
- SAMS (Navy)
- SAMMS (DLA)
- CALS

The Composite Health Care Systems (CHS), part of the TRI-Service Medical Information Systems (TRIMIS), is one of twelve health care interim standard systems. Science Applications International Corporation (SAIC) won the CHS contract in 1988 to provide integrated hospital information systems.

DLA is currently testing a prototype Defense Distribution System based on the DLA Warehouse and Shipping Procedures system (DWASP). The prototype was developed in response to DMRD 902, which directed the consolidation of all defense depots under DLA. A decision on which information system will be standardized and implemented worldwide is expected early in 1992. DoD hopes to deploy the system by October 1992, and will require a contractor(s) to quickly drop in additional computing resources and services.

Through the Integrated Computer-Aided Software Engineering (I-CASE) procurement the Air Force intends to acquire a development environment to support software production and maintenance functions throughout the DoD. The development environment must support Ada, SQL, RDBMs, X-Windows, and a central data repository. All I-CASE software must eventually be ported to operate on DoD standard POSIX platforms. The contract's value is estimated at \$25 million. The final RFP should be released early in 1992.

In 1991, the Air Force Personnel Data System-Civilian (PDS-C) was designated as the interim standard system for civilian personnel. The system has been renamed the Defense Civilian Personnel Data System (DCPDS). DLA's Automated Payroll Cost and Personnel System (APCAPS) was primarily used by some of the other services. Future APCAPS enhancements will be severely limited as DCPDS is implemented throughout the DoD.

The Navy's Shipboard Non-Tactical ADP Program (SNAP) replaces ADP equipment for ships and select Naval sites. One component, the Automated Medical System (SAMS) has been designated as an interim standard system.

SAMMS—DLA's Standard Automated Materiel Management System—processes hardware, medical, clothing and textiles commodities. An integration contract for SAMMS was recently terminated. The system is under evaluation by CIM, and is expected to be downsized and rescoped.

DoD began making headway towards consolidation efforts in 1985. The Computer-Aided Logistics Support (CALS) initiative was launched to institute a fully integrated network of defense acquisition and logistics systems. CALS programs were projected to automate the creation, design, manufacture, and support of weapon systems and equipment within the DoD. Although each of the services runs its own programs, some common CALS standards have been developed. CIM management will now take CALS from the standards mode to the execution mode. Some awarded and current CALS programs are listed in Exhibit III-9.

EXHIBIT III-9

CALS Programs		
Program	Agency	Status
Engineering Data Management Information Control System (EDMICS)	Navy	Awarded
Network for the Integrated Undersea Surveillance System (IUSS)	Navy	Open
CAD/CAM II	Navy	Partial Award
Joint Computer-Aided Logistics Services (JCALS)	Army	Awarded
Cataloging Tools On-Line (CTOL)	DLA	Awarded

The Navy's EDMICS program has been selected as the automated engineering repository for all the services. PRC's current contract, valued at \$150 million, is expected to substantially increase as EDMICS is extended to all the services. The Department of Energy is considering patterning its system after EDMICS.

### 3. Other DISA Procurements

Other DISA procurements currently under way or scheduled to occur over the next few years are:

- National Emergency Telecommunications Service (NETS)
- International Switched Voice Service (ISVS)
- Defense Information Systems Network (DISN)
- SETA for the Defense Information Systems Network
- SETA for the National Military Command System
- Technical Support Services for the Nuclear Planning and Execution System to Support the DSSO
- Worldwide Management Support Services for the Defense Switched Network
- Technical Support to Support DSSO

The National Emergency Telecommunications Service (NETS) procurement sponsored by the National Communications System arm of DISA has been delayed since 1989. NETS will provide emergency communications services to key federal users in all 50 states. The procurement's delay is due in part to security concerns expressed by vendors. The agency hopes to finally release a revised draft solicitation early in 1992.

The International Switched Voice Service (ISVS) is valued by some industry sources as high as \$500 million. ISVS will provide single interLATA carrier, operator assistance and calling card services for outgoing calls throughout federal CONUS locations. A contract award should be made by February 1992.

DISA plans to integrate voice, data and video networks into one super Defense-wide program—the Defense Information Systems Network (DISN). Its potential value could exceed \$1 billion. DISN has been delayed due to DoD budget problems. Its requirements are not fully defined, and a timetable has not been established.

A contract for a DISN prototype and associated systems engineering and technical services should be awarded by January 1992.

A contract valued at close to \$7 million for SETA services for the National Military Command System was awarded to Booz, Allen & Hamilton in June 1990. If all option years are exercised, this contract should be recompeted in FY 1994.

Bids are due by January 21, 1992 for Technical Support Services for the Nuclear Planning and Execution System to Support the Defense Systems Support Organization (DSSO). The level of effort for this five-year contract is estimated at approximately 1,500 technical staff-months.

Two GTE Government Systems contracts valued jointly at \$23 million will be recompeted as one contract early in 1992. An RFP for Defense Switched Network Worldwide Management Support Services is targeted for release between January and March 1992. The new contract will incorporate both technical and managerial support functions.

CSC's contract for general support services to support DSSO is scheduled for recompetite by January 1992. The current three-year contract is valued at \$31 million.

Unlike many other federal agencies, DISA actively encourages vendor competition. The agency openly markets its contractor needs and information systems directions through several vehicles. DISA's annual forecast to industry, an electronic bulletin board service, and various materials from the Competition Advocate's office provide detailed information to vendors on upcoming opportunities at the agency. DISA also actively promotes small businesses and small/disadvantaged-business relationships with contractors. Contractors should bear in mind that the agency has just begun having five-year contracts (including option years). Over a five-year period, it might appear that fewer contracting actions exist. However, the potential value of each proposed contract should be higher than for three-year contracts.

#### **4. Other Agencies**

DISA performs contract award and administration services for other agencies. Some important open procurements are:

- SETA for the U.S. Transportation Command
- Small Tower Voice Switch (STVS)
- Alaskan NAS Interfacility Communications System Satellite Network (ANICS)
- Telecommunications Satellite System (FAATSAT)
- Administrative Data Telecommunications Network 2000 (ADTN 2000)

CSC holds the current C4 SETA contract for the DISA Center for Command, Control and Communications at the U.S. Transportation Command. The contract's estimated value is \$9 million, and is scheduled to expire in April 1994. If recompeted, an RFP will be released in 1993.



Approximately 25% of the contracts processed by DECCO in any given year are for the Federal Aviation Administration (FAA). The RFP for the FAA's Small Tower Voice Switch procurement should finally be released in 1992 after many delays.

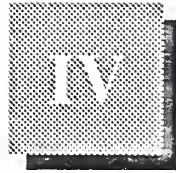
Bids are due for the Alaskan NAS Interfacility Communications System Satellite Network (ANICS) in late February 1992. Funding requests for this FAA procurement total approximately \$63 million by 1996.

FAATSAT's solicitation is expected in the January-February 1992 timeframe. Through FAATSAT, the FAA will consolidate CONUS satellite services into a single satellite network.

The RFP for FAA's Administrative Data Telecommunications Network 2000 is scheduled for release in early 1992. ADTN, a private nationwide network, is not linked to FTS 2000. An award will be made by November 1992. The current contract for ADTN is valued at \$18.1 million.







# Competitive Factors

## A

### Contracting History and Major Vendors

All agencies that spend over the small-purchase threshold of \$25,000 for information systems and services are required to report contract obligation activity to the Federal Procurement Data System (FPDS). Information systems and services acquisitions are classified by the FPDS into six broad categories encompassing the following:

- Telecommunications Equipment
  - Communications Equipment
  - Telephone and Facsimile (includes telegraph and teletype)
- Telecommunications Equipment-Related Services
  - Maintenance, Repair and Rebuilding of Equipment
  - Installation of Equipment
- Leased Telecommunications Services
  - Utilities (telephone and/or communications)
- ADP Equipment
  - ADP Equipment and Support Equipment (CPUs, components, I/O devices, system configuration, etc.)
  - Prepackaged Software
  - Office Machines and Visible Record Equipment
- ADP Services
  - ADP and Telecommunications Services (includes facilities management, also known as systems operations)
  - Systems Development, Analysis, Programming
- ADP Equipment-Related Services
  - Maintenance, Repair and Rebuilding of Equipment
  - Installation of Equipment
  - Quality Control Services
  - Equipment and Materials Testing

A perspective on which vendors have dominated the market for information systems and services becomes apparent by examining DISA's contracting history over a four-year period. Exhibit IV-1 presents DISA's contractual obligations in each of the above categories from FY 1987 to FY 1990. However, keep in mind that variances in reporting codes and procedures or exceptionally large contract awards can paint a misleading picture for a given year. In addition, data entry functions are largely performed by agency personnel having little or no knowledge of information technology. GSA does not provide definitions distinguishing between programming and systems development to assist data entry personnel. GSA contract award data will continue to be circumspect as long as agency personnel remain untrained in the importance of correct code categories.

## EXHIBIT IV-1

### DISA Contracting History by Service Categories FY 1987-FY 1990

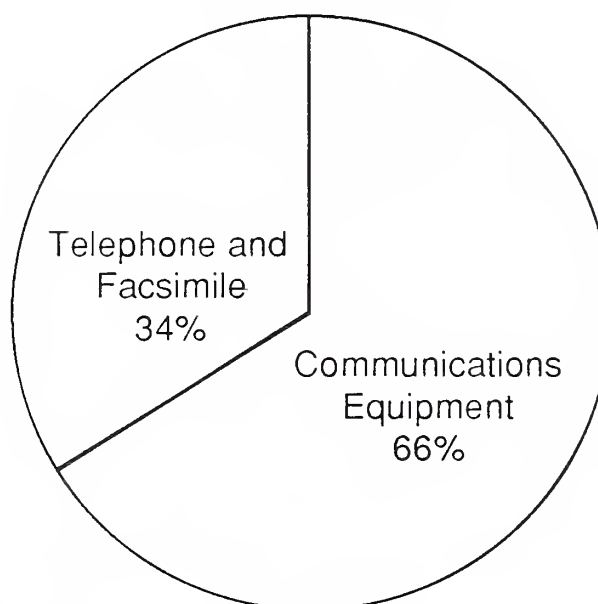
Service Category	Contract Obligations (\$000)			
	FY 1987	FY 1988	FY 1989	FY 1990
Telecommunications Equipment	7,184	1,267	9,459	10,225
Telecommunications Equipment-Related Services			12,786	4,072
Leased Telecommunications Services	434,437	308,189	138,172	334,893
ADP Equipment Market	28,496	27,630	29,269	31,600
ADP Services Market	39,355	43,095	32,524	41,479
ADP Equipment-Related Services	8,023	16,459	15,546	16,827
Total	517,495	396,640	237,756	439,096

DISA's contractual obligations for information systems and services have decreased considerably since 1987. Cuts in defense spending, as a result of the persistent budget deficit, underlie DISA's decline in contract obligations. DISA's worst year was 1989, with expenditures totalling \$237.8 million—less than half of its 1987 level. Leased telecommunications services was the lowest reported category in FY 1989, but rebounded again in 1990 as FTS 2000 services were implemented.

The telecommunications equipment market segment as defined by the Federal Procurement Data System has two subsegments, as shown in Exhibit IV-2. Considering DISA's role as the lead C3I agency, it is not surprising that communications equipment comprised two-thirds of the contract obligations in 1990. Also, expenditures in the telephone and facsimile category tend to be smaller, and occur less frequently.

EXHIBIT IV-2

### DISA Telecommunications Equipment Market Contract Obligations, FY 1990



Source: Pinpoint, 9/91

A list of the top contractors for communications equipment over the most recent four-year period is shown in Exhibit IV-3. Three contractors accounted for 69% of the agency's obligations. Motorola's presence at DISA was fairly consistent from FY 1987-FY 1990. However, the majority of obligations for the others were in specific years. Most communications equipment buys are one-shot purchases. Ongoing purchases usually do not occur. Eighty percent of Stanford Telecommunications' obligations were in 1987. Two-thirds of Bolt Beranek & Newman's occurred in 1990.

## EXHIBIT IV-3

### Top Contractors—Communications Equipment FY 1987-FY 1990

Contractor	Obligations (\$000)
Motorola	7,218
Stanford Telecommunications	6,368
Bolt Beranek & Newman	2,451

Source: Pinpoint 9/91

Total agency obligations were \$23.3 million.

The top contractors for the telephone and facsimile segment of the telecommunications equipment market are listed in Exhibit IV-4. Telephone companies dominate the market. Four of the top vendors' contracts were obligated in 1990. AT&T's obligations were evenly distributed over 1989 and 1990, reflecting the agency's preference for AT&T telephones.

## EXHIBIT IV-4

### Top Contractors—Telephone and Facsimile Equipment, FY 1987-FY 1990

Contractor	Obligations (\$000)
AT&T	1,564
ALLTEL Supply	955
Quintron Systems	406
Southwestern Bell	360
U S West	347

Source: Pinpoint, 9/91

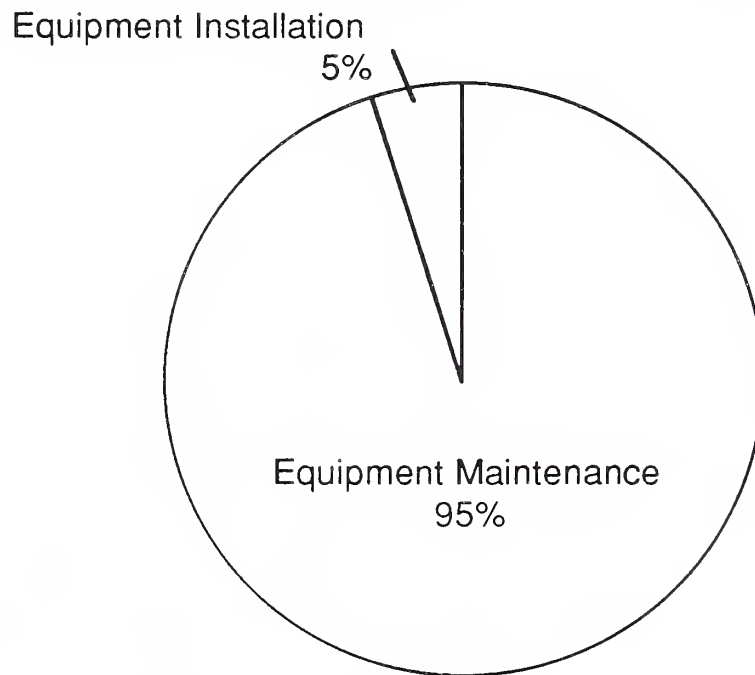
Total agency obligations were \$4.9 million.



In the telecommunications equipment-related services market, the majority of contract dollars were directed at equipment maintenance, as shown in Exhibit IV-5. Equipment installation services comprised only 5% of the market in 1990.

EXHIBIT IV-5

**DISA Telecommunications Equipment-Related Services Market—Contract Obligations, FY 1990**



Source: Pinpoint, 9/91

Because only a few vendors supply telecommunications equipment-related services to DISA, they are listed in Exhibits IV-6 and IV-7. DISA did not report contract awards under these codes in 1987 and 1988. Contract obligations appeared only in 1989 and 1990.

## EXHIBIT IV-6

**Contractors in the Telecommunications Equipment Maintenance Market, FY 1987-FY 1990**

Contractor	Obligations (\$000)
MCI	6,160
Contel	3,350
AT&T	395
ITT/Alcatel	109
Total	10,014

Source: Pinpoint, 9/91

## EXHIBIT IV-7

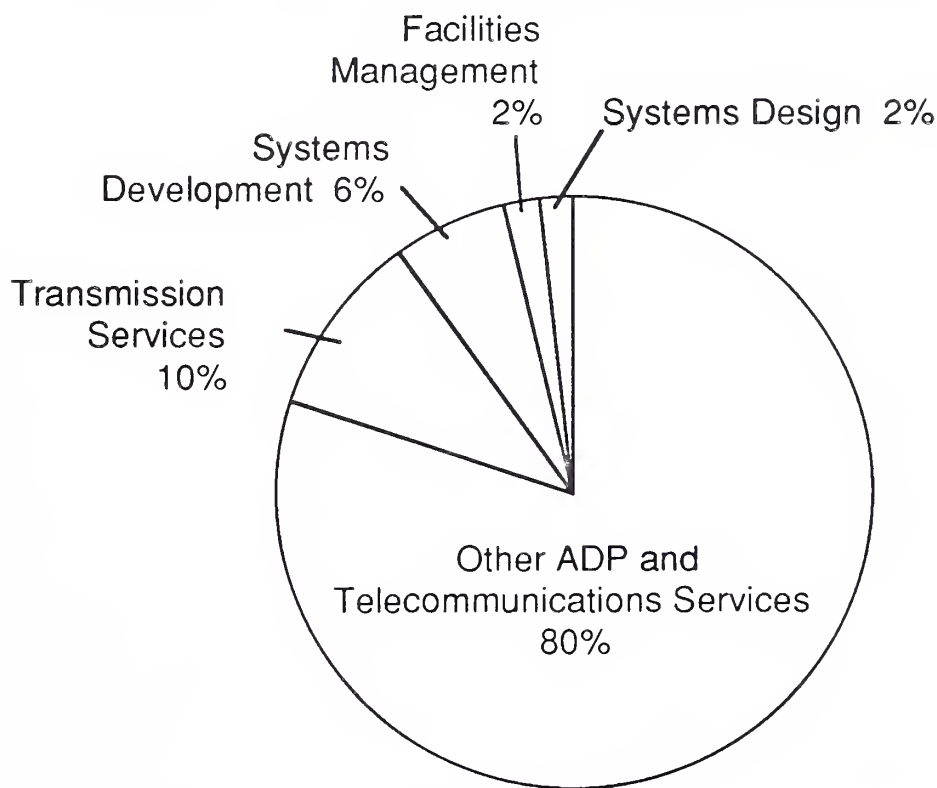
**Contractors in the Telecommunications Equipment Installation Market, FY 1987-FY 1990**

Contractor	Obligations (\$000)
GTE Corp.	3,300
Pacific Telesis Group	2,763
MCI	473
T CAS Corp.	218
AT&T	90
Total	6,844

Source: Pinpoint, 9/91

In the ADP services market segment, contract obligations for other ADP and telecommunications services comprised 80% of the market. As shown in Exhibit IV-8, systems development, systems design, and facilities management jointly had 10% of the obligated dollars for that year. Transmission services were responsible for the remaining 10% of obligations.

EXHIBIT IV-8

**DP Services Market—Contract Obligations, FY 1990**

Source: Pinpoint, 9/91

The top contractors for ADP and telecommunications services during FY 1987-FY 1990 are well known for systems integration and professional services, as shown in Exhibit IV-9.

## EXHIBIT IV-9

### Top Contractors—ADP and Telecommunications Services Market, FY 1987-FY 1990

Contractor	Obligations (\$000)
CSC	38,221
Data Systems Analysts	11,198
RJO Enterprises	8,411
AT&T	8,205

Source: Pinpoint, 9/91

Total agency obligations were \$140.7 million.

Most contractors had obligated dollars in three years of the four-year period. Contracts in this market segment were customarily awarded for a three-year period.

The top contractors for systems development, analysis and programming services present a different picture, as seen in Exhibit IV-10. The primary business for both Unisys and Wang has been hardware. However, these two vendors account for 56% of the market dollars, with obligations appearing in only one of the four years. Another strong vendor in this subsegment is Information Management Consultants, having obligated dollars reported for 1990 only. Agencies usually award short-term, one-year contracts for systems development, analysis and programming services.

Contract obligations for the systems operations (SO) subsegment is only 2% or \$10 million from FY 1987 to FY 1990, as listed in Exhibit IV-11. DISA has little need for SO services from vendors. As DoD dollars progressively shrink, and more efficient business methods are applied across the DoD, the agency may seek more outsourcing services.

All Honeywell dollars were obligated in 1988. Agency obligations for all other vendors were only reported in 1990. Considering that most SO contracts exceed one or two years, the data is highly suspect. Contract obligations are usually reported over a period of several consecutive years, as options are exercised.

## EXHIBIT IV-10

**Top Contractors—Systems Development, Analysis  
and Programming, FY 1987-FY 1990**

Contractor	Obligations (\$000)
Unisys	1,765
Wang	1,427
Information Management Consultants	1,291
Synergy	835
Potomac Systems Engineering	222

Source: Pinpoint, 9/91

Total agency obligations were: \$5.7 million.

## EXHIBIT IV-11

**Contractors in the Systems Operations Market  
FY 1987-FY 1990**

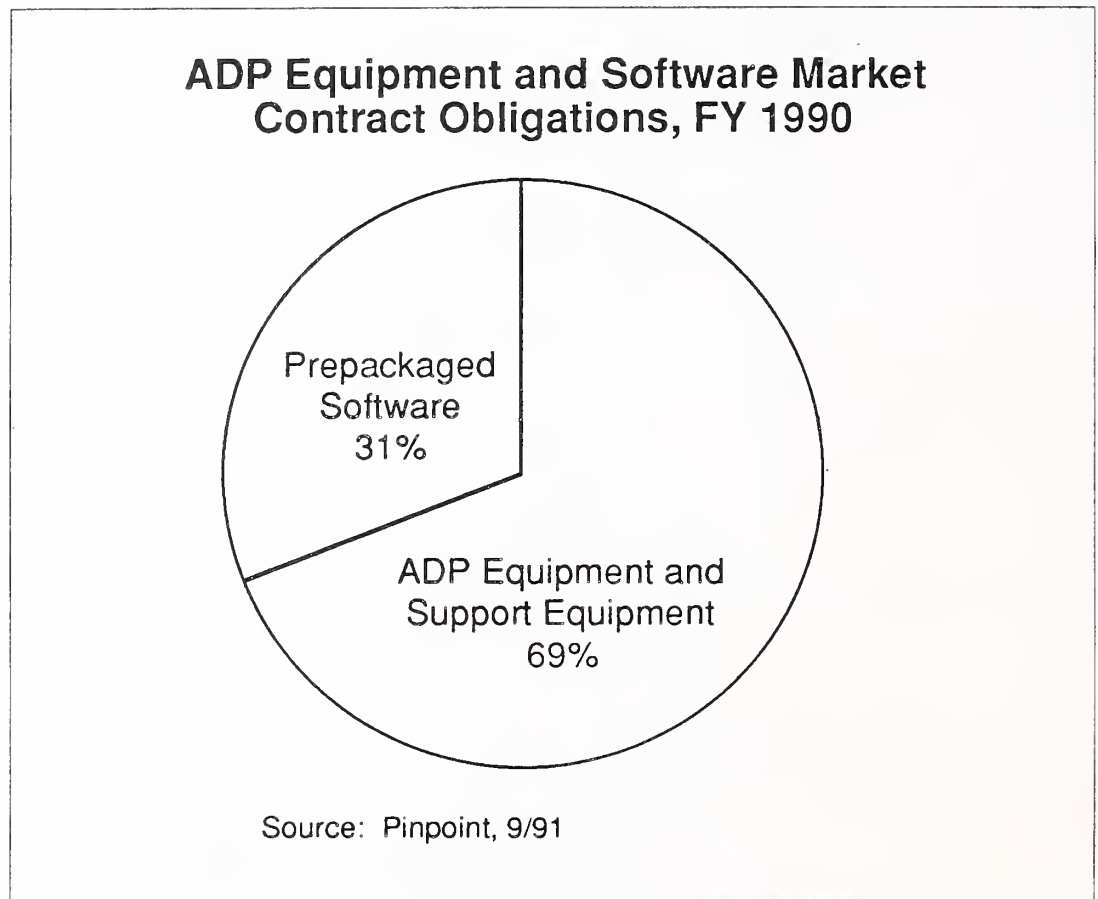
Contractor	Obligations (\$000)
Honeywell	9,008
Femme Computer, Inc.	590
Network EQP Technologies	348
Storage Technology	36
International Data Products	36
Total	10,018

Source: Pinpoint, 9/91



DISA's ADP equipment and software market for FY 1990 is depicted in Exhibit IV-12. Prepackaged software obligations accounted for approximately 30% of the market. The majority of dollars were allocated for ADP equipment and support equipment.

EXHIBIT IV-12



The top contractors in the ADP equipment and support category consistently had dollars obligated in two or three years of the reported period. Vendors' total obligations are shown in Exhibit IV-13. Fifty-five percent of Wang's occurred in 1989. Northern Telecom actually had \$8.9 million in 1987, but had deobligations in 1988 and 1989. No dollars were allocated for Honeywell in 1989. Eighty-two percent of obligated dollars for Stanford Telecommunications occurred in 1987. Most of Hewlett-Packard's occurred in 1989 and 1990.

Review of the vendors in the prepackaged software segment reveals two trends. The top vendors, listed in Exhibit IV-14, had obligated dollars in every reported year. The other vendors showed contract obligations in one fiscal year only. Unisys obviously dominates this market.

## EXHIBIT IV-13

### Top Contractors—ADP Equipment and Support Equipment, FY 1987-FY 1990

Contractor	Obligations (\$000)
Wang	9,337
Northern Telecom	7,910
Honeywell	7,545
Stanford Telecommunications	5,919
Hewlett-Packard	3,291

Source: Pinpoint, 9/91

Total agency obligations were \$69.6 million.

## EXHIBIT IV-14

### Top Contractors—Prepackaged Software FY 1987-FY 1990

Contractor	Obligations (\$000)
Unisys	29,353
Honeywell	11,155
IBM	1,563

Source: Pinpoint, 9/91

Total agency obligations were \$47.3 million.

There are no subsegments in the leased telecommunications category of the Federal Procurement Data System. Top vendors in this market segment are shown in Exhibit IV-15. As expected, well-known telecommunications vendors held 68% of the market during the reported period. Contract obligations appeared in every year for most vendors. AT&T's dominance is due to providing services for the Defense Communications Telecommunications Network (DCTN). The contract is now valued in excess of \$1 billion. DECCO has recently transferred AUTOVON services to DCTN and changed the scope of AT&T's contract. Because of the move, some industry critics have accused DECCO of sole-sourcing AUTOVON to DCTN.

EXHIBIT IV-15

### Top Contractors—Leased Telecommunications Services, FY 1987-FY 1990

Contractor	Obligations (\$000)
AT&T	443,188
Contel	197,423
MCI	99,633
GTE	89,855
Alascom	47,859
Bolt Beranek & Newman	47,462

Source: Pinpoint, 9/91

Total agency obligations were \$1.2 billion.

Within the ADP equipment-related services category, DISA only reported contractual obligations related to maintenance, repair and rebuilding. The top contractors for this segment are shown in Exhibit IV-16.

## EXHIBIT IV-16

### Top Contractors—ADP Equipment-Related Services Maintenance, Repair, and Rebuilding FY 1987-FY 1990

Contractor	Obligations (\$000)
Honeywell	33,418
IBM	4,858
Unisys	1,678
DEC	1,486
Wang	1,071

Source: Pinpoint, 9/91

Total agency obligations were \$54.6 million.

Honeywell holds 61% of the market. All vendors—with the exception of those less easily recognized—had obligated dollars in most reported years.

## B

### Factors Impacting the Market

DISA's contracting administration performs information systems acquisitions for all DISA entities, as well as for many other agencies. Because of CIM, DISA is now in the unique position of influencing information systems usage at other agencies. Some of the factors impacting DISA's needs for information technology affect other agencies as well:

- Budget cuts
- Standards
- DoD function consolidation
- Desert Shield/Storm lessons



The continuing saga of the mounting federal deficit has forced Congress to place further constraints on military spending. Already \$2.2 billion has been removed from the DoD's FY 1991-FY 1995 IT budgets. The DoD is forced into the position of doing more with less. In response to a dwindling budget, the DoD is using standards and functionally consolidating resources to promote the efficient use of information technology. The military agencies have, until recently, processed most of their business functions independently of each other. Information systems were functionally similar, but structurally different.

The Defense Information Systems Agency has emerged as the lead DoD information systems agency. DISA is charged with developing tactical information systems standards and assuring their interoperability within the DoD. DISA's internal information and telecommunications systems must also be standards-compliant to allow for portability and interoperability.

Through CIM, the agency is now accountable for handling the realities of daily operations across the military services in an environment of declining resources. CIM is beginning to consolidate common DoD business practices and influence the efficient management of information resources. The DoD intends CIM to be the systems development control force across the DoD. CIM will rely on contractors to help the DoD use technology to get the same output with less input. New technology expertise and services associated with consolidation efforts will be needed from vendors. For CIM to be judged effective, organizational and planning efforts must be implemented soon. Solicitations for contractor services should begin to appear in FY 1992.

The lessons learned during Operation Desert Shield/Desert Storm strengthen DoD's evolving commitment to standards and interoperability. They may even have contributed to the mission changes that transformed DCA into DISA. The lessons are that the following are necessary:

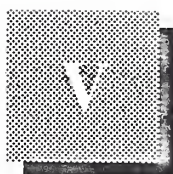
- Rapid, reliable communications
- Interoperable communications
- Common user networks
- Transparent interfaces
- Mobile, lightweight C3I equipment
- Relationships with industry

The military must use satellite communications to ensure rapid and reliable communications for any large-scale, long-distance combat exercise. Adhering to common interface standards for systems development allows for interoperability within the DoD and with U.S. allies. Continued OSI standards development will improve interoperability in the future. Common user networks, not dedicated circuits, improve network flexibility, reduce equipment requirements, and improve information sharing. Using

common graphical interfaces to access systems means that personnel in one branch of the services can easily use systems created by another branch. Learning curves are reduced when time is of the essence during a war emergency. It is not practical to transport large computer equipment into war zones. All C3I equipment should be easily mobile and light-weight to allow for air transport.

Modern warfare relies on information technology for communications, weapons systems, intelligence, tactical planning, and logistics. The main lesson learned from Desert Storm is that the DoD needs contractors to build systems and to quickly modify them as combat situations may require. As technology continues to progress, it is difficult for the DoD to maintain its own stable of experts. Relationships with commercial contractors are expected to expand as the DoD/DISA readies itself in anticipation of future conflicts.





## Key Opportunities

This section describes specific active opportunities for DISA entities and agencies that use DISA contracting services. The list should not be construed as comprehensive, because small contract actions and classified programs are not included. The list has been compiled using the following sources:

- OMB/GSA Five-Year Plan for FY 1992-FY 1996
- INPUT's Procurement Analysis Reports
- DCA's Fifth Annual Forecast to Industry, March 1991
- DISA Monthly Acquisition Profiles
- DISA's Acquisition Bulletin Board System (DABBS)

Clients are urged to consult the above sources for additional information on the programs listed below and for additional and/or smaller contractor opportunities.

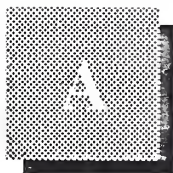
Organization/Program	PAR	RFP	Procurement Type	Comments	Est. Value or FY91-96 Funding (\$M)
<b>Office of the Secretary of Defense</b>					
Computer-aided Acquisition and Logistics Support	V-4E-4	Various	Various	Umbrella program	
<b>DISA</b>					
Joint WAM	V-4G-2	Various	Various	Umbrella program	Unk

Organization/Program	PAR	RFP	Procurement Type	Comments	Est. Value or FY91-96 Funding (\$M)
National Emergency Telecommunications Network (NETS)	V-4G-3	2QFY92	Full and Open		Unk
Joint Operations Planning and Execution System (JOPEs)	V-4G-5	Various	Various	WAM Program	276.4
International Switched Voice Service (ISVS)	V-4G-8	7/17/91	Full and Open	Awd. 1/92	500.0
Defense Information Systems Network (DISN)	V-4G-9	Unk	Unk	Delayed	Multi-billion
Corporate Information Management (CIM)	V-4G-10	Various	Various	Umbrella Program	Unk
-Technical Assistance		3/5/92	Various		
SETA for U.S. Transportation Command	V-4G-12	FY93	Unk	Recompete	9.0
SETA for National Military Command System	V-4G-13	FY94	Unk	Recompete	7.0
Worldwide Management Support Services for the Defense Switched Network	V-4G-14	1-3/92	Full and Open	Recompetes 2 contracts	23.0
Technical Support Services for the Nuclear Planning Support the DSSO	V-4G-15	11/27/91	Full and Open	Bids due 1/21/92	Large



Organization/Program	PAR	RFP	Procurement Type	Comments	Est. Value or FY91-96 Funding (\$M)
Basic Technical Support for the DSSO	12/91-1/92	Full and Open	Recompete		31.8
<b>Transportation/FAA</b>					
Small Tower Voice Switch (STVS)	VII-11-29	FY92 (est)	Unk		Unk
Alaskan NAS Interfacility Communications System Satellite Network (ANICS)	VII-11-47	11/4/91	Full and Open	Bids Due 2/25/92	62.6
Telecommunications Satellite System (FAATSAT)	VII-11-49	10/91 (RFI) 1-2/92 (RFP)	Full and Open		Unk
Administrative Data Telecommunications Network 2000 (ADTN 2000)	VII-11-55	1/92	Unk	Recompete	18.1





## Definitions

The definitions in this appendix include hardware, software, services, and telecommunications categories to accommodate the range of information systems and services programs described in this report.

Alternate service mode terminology employed by the federal government in its procurement process is defined along with INPUT's regular terms of reference, as shown in Exhibit A-1.

The federal government's unique, non-technical terminology, associated with applications, documentation, budgets, authorization, and the procurement/acquisition process, is included in Appendix B, Glossary of Federal Acronyms.

### A

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#### Overall Definitions and Analytical Framework

*Information Services* - Computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:

- Processing of specific applications using vendor-provided systems (called *Processing Services*)
- A combination of hardware, packaged software and associated support services which will meet a specific application processing need (called *Turnkey Systems*)
- Packaged software (called *Software Products*)
- People services that support users in developing and operating their own information systems (called *Professional Services*)
- Bundled combinations of products and services where the vendor assumes responsibility for the development of a custom solution to an information system problem (called *Systems Integration*)

- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called *Systems Operations*)
- Services associated with the delivery of information in electronic form—typically network-oriented services such as value-added networks, electronic mail and document interchange, on-line data bases, on-line news and data feeds, videotex, etc. (called *Network Services*)

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is bundled as part of an overall service offering such as a turnkey system, a systems operations contract, or a systems integration project.

The information services market also excludes pure data transport services (i.e., data or voice communications circuits). However, where information transport is associated with a network-based service (e.g., EDI or VAN services), or cannot be feasibly separated from other bundled services (e.g., some systems operations contracts), the transport costs are included as part of the services market.

The analytical framework of the *Information Services Industry* consists of the following interacting factors: overall and industry-specific business environment (trends, events and issues); technology environment; user information system requirements; size and structure of information services markets; vendors and their products, services and revenues; distribution channels, and competitive issues.

All *Information Services Market* forecasts are estimates of *User Expenditures* for information services. When questions arise about the proper place to count these expenditures, INPUT addresses them from the user's viewpoint: expenditures are categorized according to what users perceive they are buying.

By focusing on user expenditures, INPUT avoids two problems which are related to the distribution channels for various categories of services:

- Double counting, which can occur by estimating total vendor revenues when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale to end users)
- Missed counting, which can occur when sales to end users go through indirect channels such as mail order retailers.

*Delivery Modes* are defined as specific products and services that satisfy a given user need. While *Market Sectors* specify *who* the buyer is, *Delivery Modes* specify *what* the user is buying.

Of the eight delivery modes defined by INPUT, five are considered primary products or services:

- Processing Services
- Network Services
- Professional Services
- Applications Software Products
- Systems Software Products

The remaining three delivery modes represent combinations of these products and services, bundled together with equipment, management and/or other services.

- Turnkey Systems
- Systems Operations
- Systems Integration

Section B describes the delivery modes and their structure in more detail.

*Outsourcing* is defined as the contracting of information systems (IS) functions to outside vendors. Outsourcing should be viewed as the opposite of *insourcing*: anything that IS management has considered feasible to do internally (e.g., data center operations, applications development and maintenance, network management, training, etc.) is a potential candidate for outsourcing.

IS has always bought systems software, as it is infeasible for companies to develop it internally. However, all other delivery modes represent functions or products that IS management could choose to perform or develop in-house. Viewed this way, outsourcing is the result of a make-or-buy decision, and the outsourcing market covers any product or service where the vendor must compete against the client firm's own internal resources.

## B

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### Industry Structure and Delivery Modes

#### 1. Services Categories

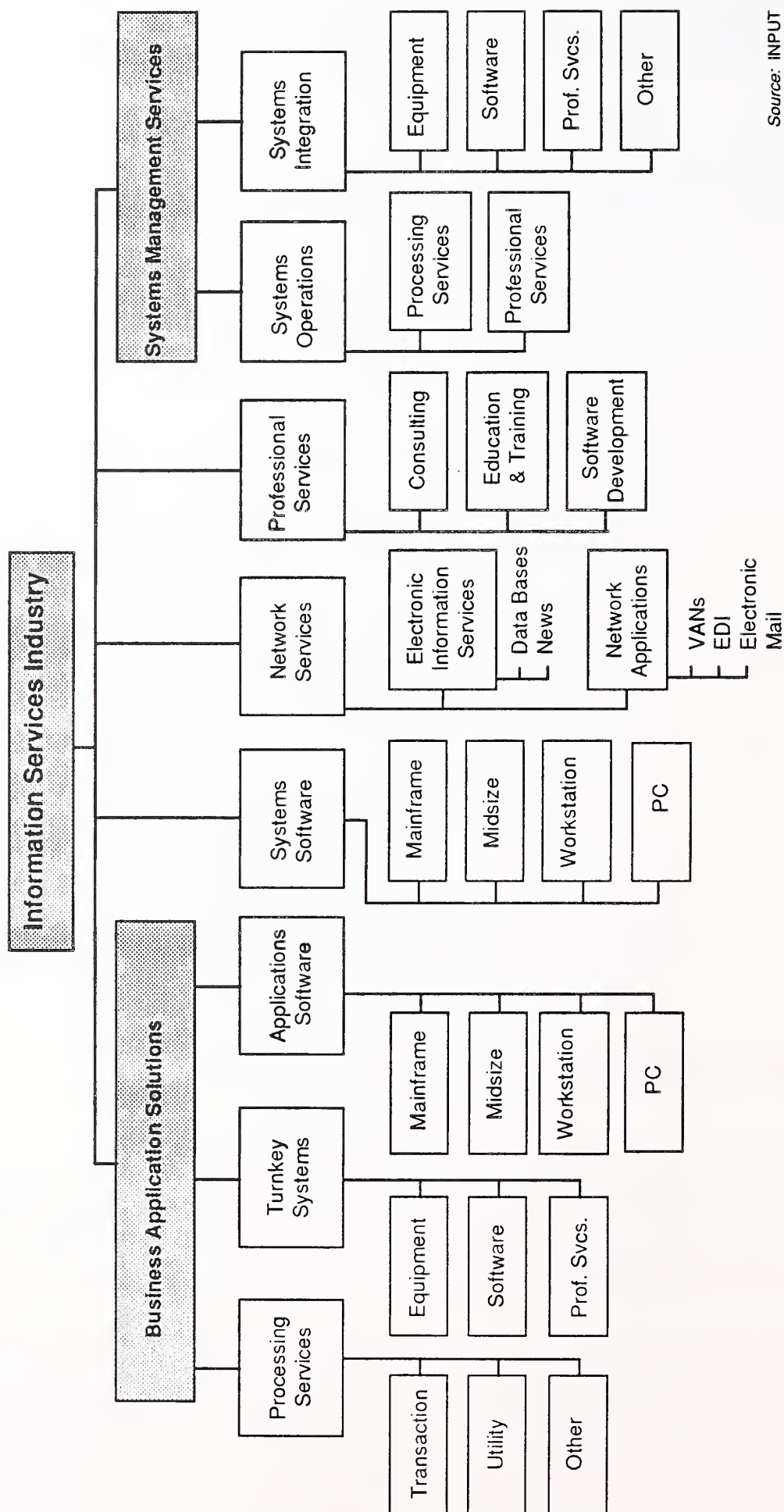
Exhibit A-1 presents the structure of the information services industry. Several of the delivery modes can be grouped into higher-level *Service Categories*, based on the kind of problem the user needs to solve. These categories are:

- *Business Application Solutions (BAS)* - prepackaged or standard solutions to common business applications. These applications can be either industry-specific (e.g., mortgage loan processing for a bank), cross-industry (e.g., payroll processing), or generic (e.g., utility time



## EXHIBIT A-1

## Information Services Industry Structure—1991



Source: INPUT

sharing). In general, BAS services involve minimal customization by the vendor, and allow the user to handle a specific business application without having to develop or acquire a custom system or system resources. The following delivery modes are included under BAS:

- Processing Services
- Applications Software Products
- Turnkey Systems
- *Systems Management Services (SMS)* - services which assist users in developing systems or operating/managing the information systems function. Two key elements of SMS are the customization of the service to each individual user and/or project, and the potential for the vendor to assume significant responsibility for management of at least a portion of the user's information systems function. The following delivery modes are included under SMS:
  - Systems Operations
  - Systems Integration

Each of the remaining three delivery modes represent a separate service category:

- Professional Services
- Network Services
- Systems Software Products

Note: These service categories are a new concept introduced in 1990. They are purely an aggregation of lower-level delivery mode data. They do not change the underlying delivery modes or industry structure.

## **2. Software Products**

There are many similarities between the applications and systems software delivery modes. Both involve user purchases of software packages for in-house computer systems. Included are both lease and purchase expenditures, as well as expenditures for work performed by the vendor to implement or maintain the package at the user's site. Vendor-provided training or support in operation and user of the package, if bundled in the software pricing, is also included here.

Expenditures for work performed by organizations other than the package vendor are counted in the category of professional services. Fees for work related to education, consulting, and/or custom modification of software products are counted as professional services, provided such fees are charged separately from the price of the software product itself.

Software products have several subcategories, as indicated below and shown in Exhibit A-2.

- Systems Software Products

Systems software products enable the computer/communications system to perform basic machine-oriented or user interface functions. These products include:

- *Systems Control Products* - Software programs that function during application program execution to manage computer system resources and control the execution of the application program. These products include operating systems, emulators, network control, library control, windowing, access control, and spoolers.
- *Operations Management Tools* - Software programs used by operations personnel to manage the computer system and/or network resources and personnel more effectively. Included are performance measurement, job accounting, computer operation scheduling, disk management utilities, and capacity management.
- *Applications Development Tools* - Software programs used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Included are traditional programming languages, 4GLs, data dictionaries, data base management systems, report writers, project control systems, CASE systems, and other development productivity aids. Also included are system utilities (e.g., sorts) which are directly invoked by an applications program.

- Applications Software Products

- *Industry-Specific Applications Software Products* - Software products that perform functions related to solving business or organizational needs unique to a specific vertical market and sold to that market only. Examples include demand deposit accounting, MRPII, medical recordkeeping, automobile dealer parts inventory, etc.
- *Cross-Industry Applications Software Products* - Software products that perform a specific function that is applicable to a wide range of industry sectors. Applications include payroll and human resource systems, accounting systems, word processing and graphics systems, spreadsheets, etc.

EXHIBIT A-2

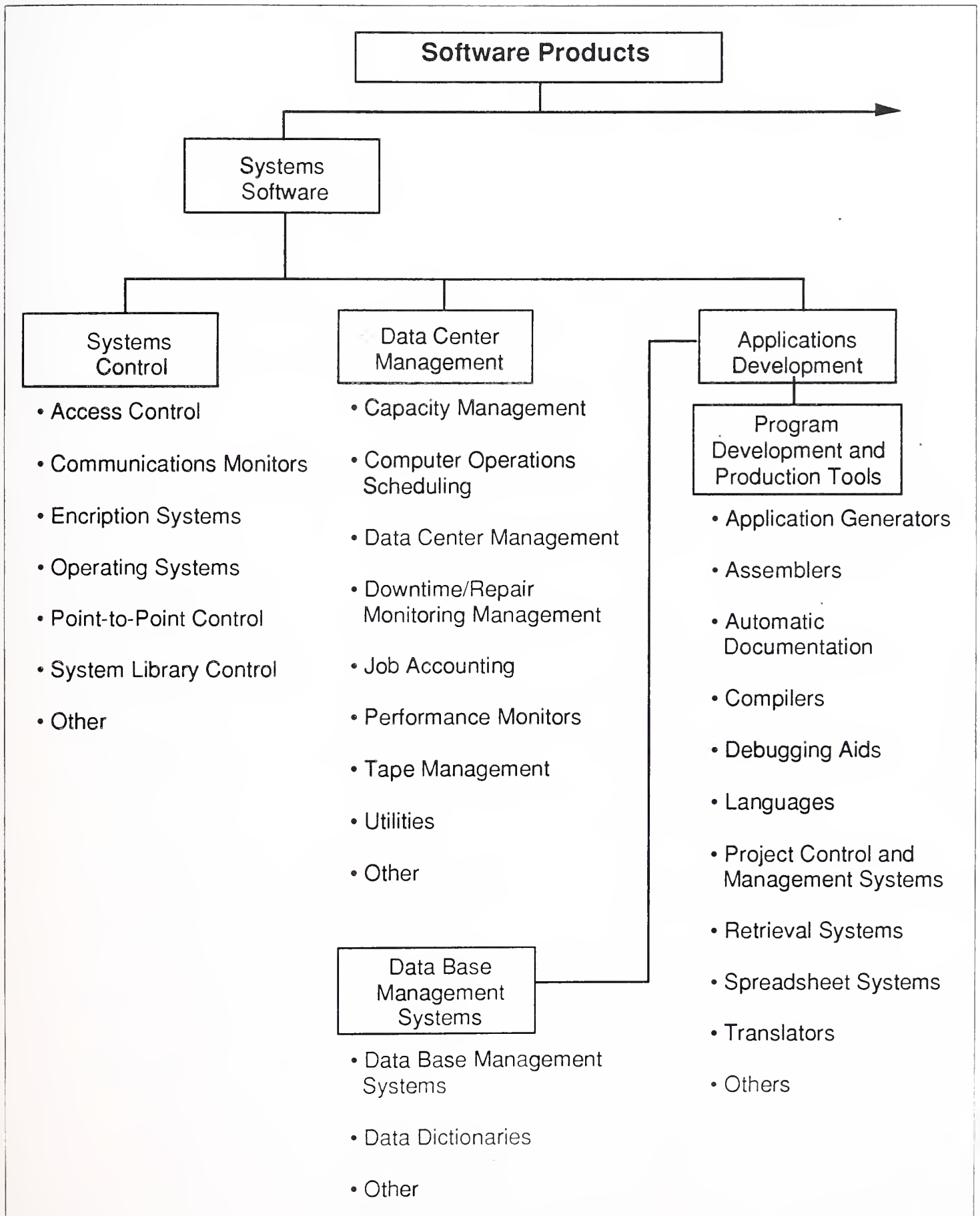
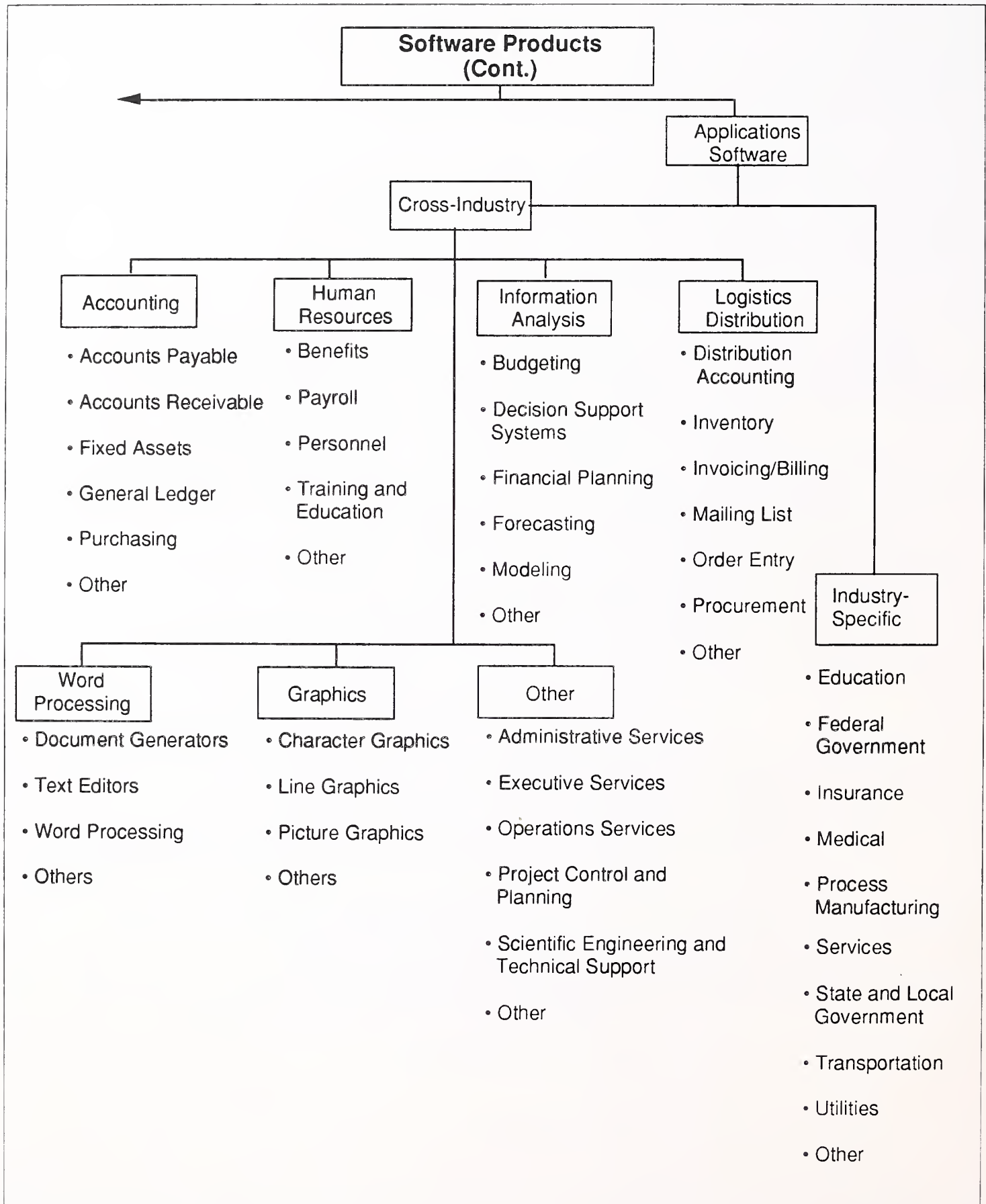




EXHIBIT A-2 (CONT.)





### 3. Turnkey Systems

A turnkey system is an integration of equipment (CPU, peripherals, etc.), systems software, and packaged or custom application software into a single system developed to meet a specific set of user requirements. Value added by the turnkey system vendor is primarily in the software and support services provided. Most CAD/CAM systems and many small business systems are turnkey systems. Turnkey systems utilize standard computer and do not include specialized hardware such as word processors, cash registers, process control systems, or embedded computer systems for military applications.

Hardware vendors that combine software with their own general-purpose hardware are not classified by INPUT as turnkey vendors. Their software revenues are included in the appropriate software category.

Most turnkey systems are sold through channels known as value-added resellers.

- **Value-Added Reseller (VAR):** A VAR adds value to computer hardware and/or software and then resells it to an end user. The major value added is usually application software for a vertical or cross-industry market, but also includes many of the other components of a turnkey systems solution, such as professional services.

Turnkey systems are divided into two categories:

- *Industry-Specific Systems* - systems that serve a specific function for a given industry sector, such as automobile dealer parts inventory, medical recordkeeping, or discrete manufacturing control systems.
- *Cross-Industry Systems* - systems that provide a specific function that is applicable to a wide range of industry sectors, such as financial planning systems, payroll systems, or personnel management systems.

### 4. Processing Services

This category includes transaction processing, utility processing, and other processing services.

- *Transaction Processing:* Client uses vendor-provided information systems—including hardware, software and/or data networks—at vendor site or customer site to process transactions and update client data bases. Transactions may be entered in one of four modes:

- *Interactive* - Characterized by the interaction of the users with the system for data entry, transaction processing, problem solving and report preparation: the user is on-line to the programs/files stored on the vendor's system.
- *Remote Batch* - Where the user transmits batches of transaction data to the vendor's system, allowing the vendor to schedule job execution according to overall client priorities and resource requirements.
- *Distributed Services* - Where users maintain portions of an application data base and enter or process some transaction data at their own site, while also being connected through communications networks to the vendor's central systems for processing other parts of the application.
- *Carry-in Batch* - where users physically deliver work to a processing services vendor.
- *Utility Processing:* Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), generic applications programs and/or data bases, enabling clients to develop their own programs or process data on vendor's system.
- *Other Processing Services:* Vendor provides services—usually at vendor site—such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services, backup and disaster recovery, etc.

## 5. Systems Operations

Systems operations involves the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes:

- *Professional Services:* The vendor provides personnel to operate client-supplied equipment. Prior to 1990, this was a submode of the Professional Services delivery mode.
- *Processing Services:* The vendor provides personnel, equipment and (optionally) facilities. Prior to 1990, this was a submode of the Processing Services delivery mode.

Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the user's information systems (equipment, networks, systems and/or application software), either at the client's site or the vendor's site. Systems operations can also be referred to as "resource management" or "facilities management".

There are two general levels of systems operations:

- Platform/network operations - where the vendor operates the computer system and/or network without taking responsibility for the applications
- Application operations - where the vendor takes responsibility for the complete system, including equipment, associated telecommunications networks, and applications software.

Note: Systems Operations is a new delivery mode introduced in 1990.

## **6. Systems Integration (SI)**

Systems integration is a business offering that provides a complete solution to an information system, networking or automation requirements through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price.

To be included in the information services market, systems integration projects must involve some application processing component. In addition, the majority of cost must be associated with information systems products and/or services.

The systems integrator will perform, or manage others who perform, most or all of the following functions:

- Program management, including subcontractor management
- Needs analysis
- Specification development
- Conceptual and detailed systems design and architecture
- System component selection, modification, integration and customization

- Custom software design and development
- Custom hardware design and development
- Systems implementation, including testing, conversion and post-implementation evaluation and tuning
- Life cycle support, including
  - System documentation and user training
  - Systems operations during development
  - Systems maintenance
- Financing

## 7. Professional Services

This category includes consulting, education and training, and software development.

- *Consulting*: services include management consulting (related to information systems), information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of information systems, including equipment, software, networks and systems operations.
- *Education and Training*: Products and services related to information systems and services for the professional end user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation.
- *Software Development*: Services include user requirements definition, systems design, contract programming, documentation and implementation of software performed on a custom basis. Conversion and maintenance services are also included.

## 8. Network Services

Network services typically include a wide variety of network-based functions and operations. Their common thread is that most of these functions could not be performed without network involvement. Network services is divided into two major segments: Electronic Information Services, which involve selling information to the user, and Network Applications, which involve providing some form of enhanced transport service in support of a user's information processing needs.

- Electronic Information Services



Electronic information services are data bases that provide specific information via terminal- or computer-based inquiry, including items such as stock prices, legal precedents, economic indicators, periodical literature, medical diagnosis, airline schedules, automobile valuations, etc. The terminals used may be computers themselves, such as communications servers or personal computers. Users typically inquire into and extract information from the data bases. Although users may load extracted data into their own computer systems, the electronic information vendor provides no data processing or manipulation capability and the users cannot update the vendor's data bases.

The two kinds of electronic information services are:

- *On-line Data Bases* - Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.
- *News Services* - Unstructured, primarily textual information on people, companies, events, etc.

While electronic information services have traditionally been delivered via networks, there is a growing trend toward the use of CD ROM optical disks to support or supplant on-line services, and these optical disk-based systems are included in the definition of this delivery mode.

- *Network Applications*
  - *Value-Added Network Services (VAN Services)* - VAN services are enhanced transport services which involve adding such functions as automatic error detection and correction, protocol conversion, and store-and-forward message switching to the provision of basic network circuits.

While VAN services were originally provided only by specialized VAN carriers (Tymet, Telenet, etc.), today these services are also offered by traditional common carriers (AT&T, Sprint, etc.). Meanwhile, the VAN carriers have also branched into the traditional common carriers' markets and are offering unenhanced basic network circuits as well.

INPUT's market definition covers VAN services only, but includes the VAN revenues of all types of carriers.

- *Electronic Data Interchange (EDI)* - Application-to-application exchange of standardized business documents between trade partners or facilitators. This exchange is commonly performed using VAN services. specialized translation software is typically employed to convert data from organizations' internal file formats to EDI interchange standards; this software may be provided as part of the VAN service, or may be resident on the organization's own computers.



- *Electronic Information Exchange (EIE)* - Also known as Electronic Mail (E-Mail), EIE involves the transmission of messages across an electronic network managed by a services vendor, including facsimile transmission (FAX), voice mail, voice messaging, and access to Telex, TWX, and other messaging services. This also includes bulletin board services.
- *Other Network Services* - This segment contains videotex and pure network management services. Videotex is actually more a delivery mode than an application. Its prime focus is on the individual as a consumer or in business. These services provide interactive access to data bases and offer the inquirer the capability to send as well as receive information for such purposes as home shopping, home banking, travel reservations, and more.

Network management services included here must involve the vendor's network and network management systems as well as people. People-only services, or services that involve the management of networks as part of the broader task of managing a user's information processing functions are included in Systems Operations.

## C

### Hardware/Hardware Systems

*Hardware* - Includes all computer and telecommunications equipment that can be separately acquired with or without installation by the vendor and not acquired as part of an integrated system.

- *Peripherals* - Includes all input, output, communications, and storage devices (other than main memory) that can be connected locally to the main processor, and generally cannot be included in other categories such as terminals.
- *Input Devices* - Includes keyboards, numeric pads, card readers, light pens and track balls, tape readers, position and motion sensors, and analog-to-digital converters.
- *Output Devices* - Includes printers, CRTs, projection television screens, micrographics processors, digital graphics, and plotters
- *Communication Devices* - Includes modem, encryption equipment, special interfaces, and error control
- *Storage Devices* - Includes magnetic tape (reel, cartridge, and cassette), floppy and hard disks, solid state (integrated circuits), and bubble and optical memories

*Terminals* - Three types of terminals are described below:

- *User Programmable* - Also called intelligent terminals, including the following: -
  - Single-station or standalone
  - Multistation, shared processor
  - Teleprinter
  - Remote batch
- *User Nonprogrammable*
  - Single-station
  - Multistation, shared processor
  - Teleprinter
- *Limited Function* - Originally developed for specific needs, such as point-of-sale (POS), inventory data collection, controlled access, and other applications

*Hardware Systems* - Includes all processors from microcomputers to supercomputers. Hardware systems may require type- or model-unique operating software to be functional, but this category excludes applications software and peripheral devices, other than main memory and processors or CPUs not provided as part of an integrated (turnkey) system.

- *Microcomputer* - Combines all of the CPU, memory, and peripheral functions of an 8-, 16-, or 32-bit computer on a chip in various forms including:
  - Integrated circuit package
  - Plug-in boards with increased memory and peripheral circuits
  - Console including keyboard and interfacing connectors
  - Personal computer with at least one external storage device directly addressable by the CPU
  - An embedded computer which may take a number of shapes or configurations
- *Workstations* - High-performance, desktop, single-user computers employing (mostly) Reduced Instruction Set Computing (RISC). Workstations provide integrated, high-speed, local network-based services such as data base access, file storage and back-up, remote communications, and peripheral support. Typical workstation products are provided by Apollo (now a unit of Hewlett-Packard), Sun, Altos, DEC (the MicroVAX) and IBM. These products usually cost more than \$15,000. However, at this writing many companies have recently announced sizable price cuts.

- *Midsize Systems* - Describe superminicomputers and the more traditional business minicomputers. Due to steadily improving design and technology, the latter have outgrown traditional definitions (which defined small systems as providing 32-bit to 64-bit word lengths at prices ranging from \$15,000 to \$350,000). Increasingly, minicomputers and workstations meet the 32-bit definition, and may go beneath the \$15,000 lower price limit. Typical midrange systems include IBM System/3X, 43XX, AS/400, and 937X product lines, DEC PDP and VAX families (excluding MicroVAX families), and competitive products from a wide range of vendors, including HP, Data General, Wang, AT&T, Prime Concurrent, Gould, Unisys, NCR, Bull, Harris, Tandem, Stratus, and many others.
- *Large Computer* - Presently centered on storage controllers, but likely to become bus-oriented and to consist of multiple processors or parallel processor. Intended for structured mathematical and signal processing and typically used with general purpose, Von Neumann-type processors for system control. This term usually refers to traditional mainframes and supercomputers.
- *Supercomputer* - High-powered processors with numerical processing throughput that is significantly greater than the fastest general purpose computers, with capacities in the 100-500 million floating point operations per second (MFLOPS) range. Newer supercomputers, with burst modes over 500 MFLOPS, main storage size up to 10 million words, and on-line storage in the one-to-four gigabyte class, are labeled Class V to Class VII in agency long-range plans. Supercomputers fit in one of two categories:
  - Real Time - Generally used for signal processing in military applications
  - Non-Real Time - For scientific use in one of three configurations:
    - Parallel processors
    - Pipeline processor
    - Vector processor
  - *Supercomputer* - Is also applied to micro, mini, and large mainframe computers with performance substantially higher than attainable by Von Neumann architectures.
- *Embedded Computer* - Dedicated computer system designed and implemented as an integral part of a weapon, weapon system, or platform; critical to a military or intelligence mission such as command and control, cryptological activities, or intelligence activities. Characterized by military specifications (MIL SPEC) appearance and operation, limited but reprogrammable applications software, and permanent or

semipermanent interfaces. These systems may vary in capacity from microcomputers to parallel processor computer systems.

## D

### General Definitions

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*Analog* - Signal or transmission type with continuous waveform representation.

*ASCII* - American National Standard Code for Information Interchange—Eight-bit code with seven data bits and one parity bit.

*Asynchronous* - Communications operation (such as transmission) without continuous timing signals. Synchronization is accomplished by appending signal elements to the data.

*Bandwidth* - Range of transmission frequencies that can be carried on a communications path; used as a measure of capacity.

*Baud* - Number of signal events (discrete conditions) per second. Typically used to measure modem or terminal transmission speed.

*Byte* - Usually equivalent to the storage required for one alphanumeric character (i.e., one letter or number).

*CBX* - Computerized Branch Exchange—A PABX based on a computer system, implying programmability and usually voice and data capabilities.

*Central Processing Unit (CPU)* - The arithmetic and control portion of a computer; i.e., the circuits controlling the interpretation and execution of computer instructions.

*Centrex* - Central office telephone services that permit local circuit switching without installation of customer premises equipment. Could be described as shared PBX service.

*Circuit Switching* - A process that, usually on demand, connects two or more network stations, and permits exclusive circuit use until the connection is released; typical of the voice telephone network, where a circuit is established between the caller and the called party.

*CO* - Central Office—Local telco site for one or more exchanges.

*CODEC* - Coder/decoder—Equivalent to modem for digital devices.



*Constant Dollars* - Growth forecasts in constant dollars make no allowance for inflation or recession. Dollar value based on the year of the forecast unless otherwise indicated.

*Computer System* - The combination of computing resources required to perform the designed functions. May include one or more CPUs, machine room peripherals, storage systems, and/or applications software.

*CPE* - Customer Premises Equipment—DCE or DTE located at a customer site rather than at a carrier site such as the local telephone company CO. May include switchboards, PBX, data terminals, and telephone answering devices.

*CSMA/CD* - Carrier Sense Multiple Access/Collision Detect—Contention protocol used in local-area networks, typically with a multipoint configuration.

*Current Dollars* - Estimates or values expressed in current-year dollars which, for forecasts, would include an allowance for inflation.

*Data Encryption Standard (DES)* - Fifty-six-bit key, one-way encryption algorithm adopted by NIST in 1977, implemented through hardware ("S-boxes") or software. Designed by IBM with NSA guidance.

*Datagram* - A self-contained packet of information that does not depend on the contents of preceding or following packets and has a finite length.

*DCA* - IBM's Document Content Architecture—Protocols for specifying document (text) format which are consistent across a variety of hardware and software systems within IBM's DISOSS.

*DCE* - Data Circuit-terminating Equipment—Interface hardware that couples DTE to a transmission circuit or channel by providing functions to establish, maintain, and terminate a connection, including signal conversion and coding.

*DDCMP* - Digital Data Communications Message Protocol—Data link protocol used in Digital Equipment Company's DECNET.

*DECNET* - Digital Equipment Company's network architecture.

*Dedicated Circuit* - A permanently established network connection between two or more stations; contrast with switched circuit.

*DEMS* - Digital Electronic Message Service—Nationwide common carrier digital networks which provide high-speed, end-to-end, two-way transmission of digitally encoded information using the 10.6 GHz band.



*DIA* - IBM's Document Interchange Architecture—Protocols for transfer of documents (text) between different hardware and software systems within IBM's DISOSS.

*Digital* - Signal or transmission type using discontinuous, discrete quantities to represent data.

*DISOSS* - IBM's DIStributed Office Support System—Office automation environment, based on DCA and DIA, which permits document (text) transfer between different hardware and software systems without requiring subsequent format or content revision.

*Distributed Data Processing* - The development of programmable intelligence in order to perform a data processing function where it can be accomplished most effectively through computers and terminals arranged in a telecommunications network adapted to the user's needs.

*DTE* - Data Terminal Equipment—Hardware which is a data source, link, or both, such as video display terminals that convert user information into data transmission, and reconvert data signals into user information.

*EBCDIC* - Extended Binary Coded Decimal Interchange Code—Eight-bit code typically used in IBM mainframe environments.

*EFT* - Electronic funds transfer.

*Encryption* - Electric, code-based conversion of transmitted data to provide security and/or privacy of data between authorized access points.

*End User* - One who is using a product or service to accomplish his or her own functions. The end user may buy a system from the hardware supplier(s) and do his or her own programming, interfacing, and installation. Alternately, the end user may buy a turnkey system from a systems house or hardware integrator, or may buy a service from an in-house department or external vendor.

*Engineering Change Notice (ECN)* - Product improvements after production.

*Engineering Change Order (ECO)* - The follow-up to ECNs, including parts and a bill of materials to effect the change in the hardware.

*Equipment Operators* - Individuals operating computer control consoles and/or peripheral equipment (BLS definition).

*Erasable Disk* - A type of disk that allows users to erase data previously written. Erasable disks used for applications where data may need to be updated periodically.

*Ethernet* - Local-area network developed by Xerox PARC using baseband signaling, CSMA/CD protocol, and coaxial cable to achieve a 10 mbps data rate.

*Facsimile* - Transmission and reception of graphic data, usually fixed images of documents, through scanning and conversion of a picture signal.

*FDM* - Frequency Division Multiplexing—A multiplexing method that permits multiple access by assigning different frequencies of the available bandwidth to different channels.

*FEP* - Front-End Processor—Communications concentrator such as the IBM 3725 or COMTEN 3690 used to interface communications lines to host computers.

*Field Engineer (FE)* - Field engineer, customer engineer, serviceperson, and maintenance person are used interchangeably and refer to the individual who responds to a user's service call to repair a device or system.

*Full-Duplex* - Bi-directional communications, with simultaneous, two-way transmission.

*General Purpose Computer System* - A computer designed to handle a wide variety of problems. Includes machine room peripherals, systems software, and small business systems.

*Half-Duplex* - Bi-directional communications, but only in one direction at a time.

*Hardware Integrator* - Develops system interface electronics and controllers for the CPU, sensors, peripherals, and all other ancillary hardware components. The hardware integrator also may develop control system software in addition to installing the entire system at the end-user site.

*HDLC* - High-level Data Link Control.

*Hertz*- Number of signal oscillations (cycles) per second, abbreviated Hz.

*IBM Token Ring* - IBM's local-area network using baseband signalling and operating at 4 mbps on twisted-pair copper wire. Actually a combination of star and ring topologies—IEEE 802.5-compatible.

*IDN* - Integrated Digital Network—Digital switching and transmission; part of the evolution to ISDN.

*Independent Suppliers* - Suppliers of machine room peripherals, though usually not suppliers of general purpose computer systems.

*Information Processing* - Data processing as a whole, including use of business and scientific computers.

*Installed Base* - Cumulative number or value (cost when new) of computers in use.

*Interconnection* - Physical linkage between devices on a network.

*Interoperability* - The capability to operate with other devices on a network. Different from interconnection, which merely guarantees a physical network interface.

*ISDN* - Integrated Services Digital Network—Completely digital, integrated voice and nonvoice public network service. Not clearly defined through any existing standards, although FCC and other federal agencies are developing CCITT recommendations.

*Keypunch Operators* - Individuals operating keypunch machines (similar to electric typewriters) to transcribe data from source materials onto punch cards.

*Lease Line* - Permanent connection between two network stations. Also known as dedicated or non-switched line.

*Machine Repairers* - Individuals who install and periodically service computer systems.

*Machine Room Peripherals* - Peripheral equipment generally located close to the central processing unit.

*Mainframe* - The central processing unit (CPU or units in a parallel processor) of a computer that interprets and executes computer (software) instructions of 32 bits or more.

*MAP* - Manufacturing Automation Protocol—Seven-layer communications standard for factory environments promoted by General Motors/EDS. Adopts IEEE 802.2 and IEEE 802.4 standards plus OSI protocols for other layers of the architecture.

*Mean Time to Repair* - The mean of elapsed times from the arrival of the field engineer on the user's site to the time when the device is repaired and returned to user service.

*Mean Time to Respond* - The mean of elapsed times from the user call for services and the arrival of the field engineer on the user's site.

*Message* - A communication intended to be read by a person. The quality of the received document need not be high, only readable. Graphic materials are not included.

*MMFS* - Manufacturing Messaging Format Standard—Application-level protocol included within MAP.

*Modem* - A device that encodes information into electronically transmittable form (MODulator) and restores it to original analog form (DEMODulator).

*NCP* - Network Control Program—Software used in IBM 3705/3725 FEPs for control of SNA networks.

*Node* - Connection point of three or more independent transmission points which may provide switching or data collection.

*Off-Line* - Pertaining to equipment or devices that can function without direct control of the central processing unit.

*On-Line* - Pertaining to equipment or devices under direct control of the central processing unit.

*Optical Disk* - Storage device that uses laser technology to record data. Optical disks provide high storage capacity, but cannot be overwritten.

*OSI* - ISO reference model for Open Systems Interconnection—Seven-layer architecture for application, presentation, session, transport, network, data link, and physical services and equipment.

*OSI Application Layer* - Layer 7, providing end-user applications services for data processing.

*OSI Data Link Layer* - Layer 2, providing transmission protocols, including frame management, link flow control, and link initiation/release.

*OSI Network Layer* - Layer 3, providing call establishment and clearing control through the network nodes.

*OSI Physical Layer* - Layer 1, providing the mechanical, electrical, functional, and procedural characteristics to establish, maintain, and release physical connections to the network.

*OSI Presentation Layer* - Layer 6, providing data formats and information such as data translation, data encoding/decoding, and command translation.



*OSI Session Layer* - Layer 5, establishes, maintains, and terminates logical connections for the transfer of data between processes.

*OSI Transport Layer* - Layer 4, providing end-to-end terminal control signals such as acknowledgments.

*Overseas* - Not within the geographical limits of the continental United States, Alaska, Hawaii, and U.S. possessions.

*PABX* - Private Automated Branch Exchange—Hardware that provides automatic (electro-mechanical or electronic) local circuit switching on a customer's premises.

*PAD* - Packet Assembler-Disassembler—A device that enables DTE not equipped for packet switching operation to operate on a packet switched network.

*PBX* - Private Branch Exchange—Hardware that provides local circuit switching on the customer premise.

*PCM* - Pulse-Code Modulation—Modulation involving conversion of a waveform from analog to digital form through coding.

*PDN* - Public Data Network—A network established and operated by a recognized private operating agency, a telecommunications administration, or other agency for the specific purpose of providing data transmission services to the public.

*Peripherals* - Any unit of input/output equipment in a computer system, exclusive of the central processing unit.

*PPM* - Pulse Position Modulation.

*Private Network* - A network established and operated for one user or user organization.

*Programmers* - Persons mainly involved in designing, writing, and testing computer software programs

*Protocols* - The rules for communication system operation that must be followed if communication is to be effected. Protocols may govern portions of a network or service. In digital networks, protocols are digitally encoded as instructions to computerized equipment.

*Public Network* - A network established and operated for more than one user with shared access, usually available on a subscription basis. See related international definition of PDN.



*Read-Only* - A type of disk that is prerecorded and can be used for retrieving data. A read-only disk cannot be overwritten. A read-only system will retrieve and display stored data, but the system cannot alter the stored data.

*Read/Write* - A type of disk that can be read and written upon. A read/write system will read and display stored data and alter data already recorded.

*Scientific Computer System* - A computer system designed to process structured mathematics (such as Fast Fourier Transforms), and complex, highly redundant information (such as seismic data, sonar data, and radar), with large, on-line memories and very high-capacity output.

*SDLC* - Synchronous Data Link Control—IBM's data link control for SNA. Supports a subset of HDLC modes.

*SDN* - Software-Defined Network.

*Security* - Physical, electrical, and computer (digital) coding procedures to protect the contents of computer files and data transmission from inadvertent or unauthorized disclosure to meet the requirements of the Privacy Act and national classified information regulations

*Service Delivery Point* - The location of the physical interface between a network and customer/user equipment

*Simplex* - Unidirectional communications.

*Smart Box* - A device for adapting existing DTE to new network standards such as OSI. Includes PADs and protocol convertors, for example.

*SNA* - Systems Network Architecture—Seven-layer communications architecture designed by IBM. Layers correspond roughly but not exactly to OSI model.

*Software* - Computer programs

*Supplies* - Includes materials associated with the use of operations of computer systems, such as printer paper, keypunch card, disk packs, and tapes.

*Switched Circuit* - Temporary connection between two network stations established through dial-up procedures.

*Synchronous* - Communications operation with separate, continuous clocking at both sending and receiving stations.

*Systems Analyst* - Individual who analyzes problems to be converted to a programmable form for application to computer systems.

*Systems House* - Vendor that acquires, assembles, and integrates hardware and software into a total system to satisfy the data processing requirements of an end user. The vendor also may develop systems software products for license to end users. The systems house vendor does not manufacture mainframes.

*Systems Integrator* - Systems house vendor that develops systems interface electronics, applications software, and controllers for the CPU, peripherals, and ancillary subsystems which may have been provided by a contractor or the government (GFE). This vendor may either supervise or perform the installation and testing of the completed system.

*T1* - Bell System designation for 1.544 mbps carrier capable of handling 24 PCM voice channels.

*TDM* - Time Division Multiplexing—A multiplexing method that interleaves multiple transmissions on a single circuit by assigning a different time slot to each channel.

*Token Passing* - Local-area network protocol which allows a station to transmit only when it has the "token," an empty slot on the carrier.

*TOP* - Technical Office Protocol—Protocol developed by Boeing Computer Services to support administrative and office operations as complementary functions to factory automation implemented under MAP.

*Turnkey System* - System composed of hardware and software integrated into a total system designed to fulfill completely the processing requirements of a single application.

*Twisted-Pair Cable* - Communications cabling consisting of pairs of single-strand metallic electrical conductors, such as copper wires, typically used in building telephone wiring and some LANs.

*Verification and Validation* - Process for examining and testing applications and special systems software to verify that it operates on the target CPU and performs all of the functions specified by the user.

*Voice-Grade* - Circuit or signal in the 300-3300 Hz bandwidth typical of the public telephone system, nominally a 4 KHz user.

*VTAM* - Virtual Telecommunications Access Method—Host-resident communications software for SNA networks.

*WORM* - Write-Once, Read-Many—A type of disk that can be created one time. Once written on, the disk can only be read—otherwise data will be destroyed.

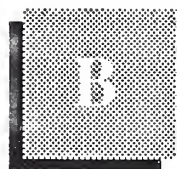
*Write-Once* - A type of disk that can be created one time. Once written on, the disk can only be read. It cannot be rewritten.

## E

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### Other Considerations

When questions arise as to the proper place to count certain user expenditures, INPUT addresses the questions from the user viewpoint. Expenditures are then categorized according to the users' perception of the purchase.



## Glossary of Acronyms

The federal government's procurement language uses a combination of acronyms, phrases, and words that is complicated by different agency definitions and interpretations. The government also uses terms of accounting, business, economics, engineering, and law with new applications and technology.

Acronyms and contract terms that INPUT encountered most often in program documentation and interviews for this report are included here, but this glossary should not be considered all-inclusive. Federal procurement regulations (DAR, FPR, FAR, FIRMR, FPMR) and contract terms listed in RFIs, RFPs, and RFQs provide applicable terms and definitions.

Federal agency acronyms have been included to the extent they are employed in this report.

### A

#### Federal Acronyms

AAS	Automatic Addressing System.
AATMS	Advanced Air Traffic Management System.
ACO	Administrative Contracting Offices (DCAS).
ACS	Advanced Communications Satellite (formerly NASA 30/20 GHz Satellite Program).
ACT-1	Advanced Computer Techniques (Air Force).
Ada	DoD High-Order Language.
ADA	Airborne Data Acquisition.
ADL	Authorized Data List.
ADS	Automatic Digital Switches (DCS).
AFA	Air Force Association.
AFCEA	Armed Forces Communications Electronics Association.
AGE	Aerospace Ground Equipment.
AIP	Array Information Processing.



AIS	Automated Information System.
AMPE	Automated Message Processing Equipment.
AMPS	Automated Message Processing System.
AMSL	Acquisition Management Systems List.
ANG	Army National Guard
AP(P)	Advance Procurement Plan.
Appropriation	Congressionally approved funding for authorized programs and activities of the Executive Branch.
APR	Agency Procurement Request.
ARPANET	DARPA network of scientific computers.
ASP	Aggregated Switch Procurement.
ATLAS	Abbreviated Test Language for All Systems (for ATE-Automated Test Equipment).
Authorization	In the legislative process programs, staffing, and other routine activities must be approved by Oversight Committees before the Appropriations Committee will approve the money from the budget.
AUSA	Association of the U.S. Army.
AUTODIN	AUTOMATIC DIGITAL Network of the Defense Communications System.
AUTOSEVOCOM	AUTOMATIC SECURE VOICE COMMUNICATIONS Network.
AUTOVON	AUTOMATIC VOICE Network of the Defense Communications System.
BA	Basic Agreement.
BAFO	Best And Final Offer.
Base level	Procurement, purchasing, and contracting at the military installation level.
BCA	Board of Contract Appeals.
Benchmark	Method of evaluating ability of a candidate computer system to meet user requirements.
Bid protest	Objection (in writing, before or after contract award) to some aspect of a solicitation by a valid bidder.
BML	Bidders Mailing List—Qualified vendor information filed annually with federal agencies to automatically receive RFPs and RFQs in areas of claimed competence.
BOA	Basic Ordering Agreement.
B&P	Bid and Proposal—Vendor activities in response to government solicitation/specific overhead allowance.
BPA	Blanket Purchase Agreement.
Budget	Federal Budget, proposed by the President and subject to Congressional review.
C <sup>2</sup>	Command and Control.
C <sup>3</sup>	Command, Control, and Communications.
C <sup>4</sup>	Command, Control, Communications, and Computers.
C <sup>3</sup> I	Command, Control, Communications, and Intelligence.
CAB	Contract Adjustment Board or Contract Appeals Board.
CADE	Computer-Aided Design and Engineering.
CADS	Computer-Assisted Display Systems.
CAIS	Computer-Assisted Instruction System.
CALS	Computer-aided Acquisition and Logistics Support.
CAPS	Command Automation Procurement Systems.



CAS	Contract Administration Services or Cost Accounting Standards.
CASB	Cost Accounting Standards Board.
CASP	Computer-Assisted Search Planning.
CBD	<i>Commerce Business Daily</i> —U.S. Department of Commerce publication listing government contract opportunities and awards.
CBO	Congressional Budget Office.
CCEP	Commercial Comsec Endorsement Program.
CCDR	Contractor Cost Data Reporting.
CCN	Contract Change Notice.
CCPDS	Command Center Processing and Display Systems.
CCPO	Central Civilian Personnel Office.
CCTC	Command and Control Technical Center (JCS).
CDR	Critical Design Review.
CDRL	Contractor Data Requirement List.
CFE	Contractor-Furnished Equipment.
CFR	Code of Federal Regulations.
CICA	Competition in Contracting Act.
CIG	Computerized Interactive Graphics.
CIR	Cost Information Reports.
CM	Configuration Management.
CMI	Computer-Managed Instruction.
CNI	Communications, Navigation, and Identification.
CO	Contracting Office, Contract Offices, or Change Order.
COC	Certificate of Competency (administered by the Small Business Administration).
COCO	Contractor-Owned, Contractor-Operated.
CODSIA	Council of Defense and Space Industry Associations.
COMSTAT	Communications Satellite Corporation.
CONUS	CONtinental United States.
COP	Capability Objective Package.
COTR	Contracting Officer's Technical Representative.
CP	Communications Processor.
CPAF	Cost-Plus-Award-Fee Contract.
CPFF	Cost-Plus-Fixed-Fee Contract.
CPIF	Cost-Plus-Incentive-Fee Contract.
CPR	Cost Performance Reports.
CPSR	Contractor Procurement System Review.
CR	Cost Reimbursement (Cost-Plus Contract).
CSA	Combat or Computer Systems Architecture.
C/SCSC	Cost/Schedule Control System Criteria (also called "C-Spec").
CWAS	Contractor Weighted Average Share in Cost Risk.
DAL	Data Accession List.
DAR	Defense Acquisition Regulations.
DARPA	Defense Advanced Research Projects Agency.
DAS	Data Acquisition System.
DBHS	Data Base Handling System.
DCA	Defense Communications Agency.

DCAA	Defense Contract Audit Agency.
DCAS	Defense Contract Administration Services.
DCASR	DCAS Region.
DCC	Digital Control Computer.
DCP	Development Concept Paper (DoD).
DCS	Defense Communications System.
DCTN	Defense Commercial Telecommunications Network.
DDA	Dynamic Demand Assessment (Delta Modulation).
DDC	Defense Documentation Center.
DDL	Digital Data Link—A segment of a communications network used for data transmission in digital form.
DDN	Defense Data Network.
DDS	Dynamic Diagnostics System.
DECCO	DEfense Commercial Communications Office.
DECEO	DEfense Communications Engineering Office.
D&F	Determination and Findings—Required documentation for approval of a negotiated procurement.
DIA	Defense Intelligence Agency.
DIF	Document Interchange Format—Navy-sponsored word processing standard.
DHHS	Department of Health and Human Services.
DIDS	Defense Integrated Data Systems.
DISC	Defense Industrial Supply Center.
DLA	Defense Logistics Agency.
DMA	Defense Mapping Agency.
DNA	Defense Nuclear Agency.
DO	Delivery Order.
DOA	Department of Agriculture (also USDA).
DOC	Department of Commerce.
DOE	Department of Energy.
DOI	Department of Interior.
DOJ	Department of Justice.
DOS	Department of State.
DOT	Department of Transportation.
DPA	Delegation of Procurement Authority (granted by GSA under FPRs).
DPC	Defense Procurement Circular.
DQ	Definite Quantity Contract.
DQ/PL	Definite Quantity Price List Contract.
DR	Deficiency Report.
DSCS	Defense Satellite Communication System.
DSN	Defense Switched Network.
DSP	Defense Support Program (WWMCCS).
DSS	Defense Supply Service.
DTC	Design-To-Cost.
ECP	Engineering Change Proposal.
ED	Department of Education.
EEO	Equal Employment Opportunity.
8(a) Set-Aside	Agency awards direct to Small Business Administration for direct placement with a socially/economically disadvantaged company.

EMC	Electro-Magnetic Compatibility.
EMCS	Energy Monitoring and Control System.
EO	Executive Order—Order issued by the President.
EOQ	Economic Ordering Quantity.
EPA	Economic Price Adjustment.
EPA	Environmental Protection Agency.
EPMR	Estimated Peak Monthly Requirement.
EPS	Emergency Procurement Service (GSA) or Emergency Power System.
EUC	End User Computing, especially in DoD.
FA	Formal Advertising.
FAC	Facility Contract.
FAR	Federal Acquisition Regulations.
FCA	Functional Configuration Audit.
FCC	Federal Communications Commission.
FCDC	Federal Contract Data Center.
FCRC	Federal Contract Research Center.
FDPC	Federal Data Processing Center.
FEDSIM	Federal (Computer) Simulation Center (GSA).
FEMA	Federal Emergency Management Agency.
FFP	Firm Fixed-Price Contract (also Lump Sum Contract).
FIPS	NBS Federal Information Processing Standard.
FIPS PUBS	FIPS Publications.
FIRMR	Federal Information Resource Management Regulations.
FMS	Foreign Military Sales.
FOC	Final Operating Capability.
FOIA	Freedom of Information Act.
FP	Fixed-Price Contract.
FP-L/H	Fixed-Price-Labor/Hour Contract.
FP-LOE	Fixed-Price-Level-Of-Effort Contract.
FPMR	Federal Property Management Regulations.
FPR	Federal Procurement Regulations.
FSC	Federal Supply Classification.
FSG	Federal Supply Group.
FSN	Federal Supply Number.
FSS	Federal Supply Schedule or Federal Supply Service (GSA).
FSTS	Federal Secure Telecommunications System.
FT Fund	A revolving fund, designated as the Federal Telecommunications Fund, used by GSA to pay for GSA-provided common-user services, specifically including the current FTS and proposed FTS 2000 services.
FTSP	Federal Telecommunications Standards Program administered by NCS; Standards are published by GSA.
FTS	Federal Telecommunications System.
FTS 2000	Proposed replacement for the Federal Telecommunications System.
FY	Fiscal Year.
FYDP	Five-Year Defense Plan.
GAO	General Accounting Office.
GFE	Government-Furnished Equipment.

GFM	Government-Furnished Material.
GFY	Government Fiscal Year (October to September).
GIDEP	Government-Industry Data Exchange Program.
GOCO	Government Owned - Contractor Operated.
GOGO	Government Owned - Government Operated.
GOSIP	Government Open Systems Interconnection Profile.
GPO	Government Printing Office.
GPS	Global Positioning System.
GRH	Gramm-Rudman-Hollings Act (1985), also called Gramm-Rudman Deficit Control.
GS	General Schedule.
GSA	General Services Administration.
GSBCA	General Services Administration Board of Contract Appeals.
HCFA	Health Care Financing Administration.
HHS	(Department of) Health and Human Services.
HPA	Head of Procuring Activity.
HSDP	High-Speed Data Processors.
HUD	(Department of) Housing and Urban Development.
ICA	Independent Cost Analysis.
ICAM	Integrated Computer-Aided Manufacturing.
ICE	Independent Cost Estimate.
ICP	Inventory Control Point.
ICST	Institute for Computer Sciences and Technology, National Bureau of Standards, Department of Commerce.
IDAMS	Image Display And Manipulation System.
IDEP	Interservice Data Exchange Program.
IDN	Integrated Data Network.
IFB	Invitation For Bids.
IOC	Initial Operating Capability.
IOI	Internal Operating Instructions.
IPS	Integrated Procurement System.
IQ	Indefinite Quantity Contract.
IR&D	Independent Research & Development.
IRM	Information Resources Management.
IXS	Information Exchange System.
JFMIP	Joint Financial Management Improvement Program.
JOCIT	Jovial Compiler Implementation Tool.
JSIPS	Joint Systems Integration Planning Staff.
JSOP	Joint Strategic Objectives Plan.
JSOR	Joint Service Operational Requirement.
JUMPS	Joint Uniform Military Pay System.
LC	Letter Contract.
LCC	Life Cycle Costing.
LCMP	Life Cycle Management Procedures (DD7920.1).



LCMS	Life Cycle Management System.
L-H	Labor-Hour Contract.
LOI	Letter of Interest.
LRPE	Long-Range Procurement Estimate.
LRIRP	Long-Range Information Resource Plan.
MAISRC	Major Automated Information Systems Review Council (DoD).
MANTECH	MANufacturing TECHnology.
MAPS	Multiple Address Processing System.
MAP/TOP	Manufacturing Automation Protocol/Technical and Office Protocol.
MASC	Multiple Award Schedule Contract.
MDA	Multiplexed Data Accumulator.
MENS	Mission Element Need Statement or Mission Essential Need Statement (see DD-5000.1 Major Systems Acquisition).
MILSCAP	Military Standard Contract Administration Procedures.
MIL SPEC	Military Specification.
MIL STD	Military Standard.
MIPR	Military Interdepartmental Purchase Request.
MOD	Modification.
MOL	Maximum Ordering Limit (Federal Supply Service).
MPC	Military Procurement Code.
MYP	Multi-Year Procurement.
NARDIC	Navy Research and Development Information Center.
NASA	National Aeronautics and Space Administration.
NBS	National Bureau of Standards.
NCMA	National Contract Management Association.
NCS	National Communications System; responsible for setting U.S. Government standards administered by GSA; also holds primary responsibility for emergency communications planning.
NICRAD	Navy-Industry Cooperative Research and Development.
NIP	Notice of Intent to Purchase.
NMCS	National Military Command System.
NSA	National Security Agency.
NSEP	National Security and Emergency Preparedness.
NSF	National Science Foundation.
NSIA	National Security Industrial Association.
NTIA	National Telecommunications and Information Administration of the Department of Commerce; replaced the Office of Telecommunications Policy in 1970 as planner and coordinator for government communications programs; primarily responsible for radio.
NTIS	National Technical Information Service.
Obligation	"Earmarking" of specific funding for a contract from committed agency funds.
OCS	Office of Contract Settlement.
OFCC	Office of Federal Contract Compliance.
Off-Site	Services to be provided near but not in government facilities.
OFMP	Office of Federal Management Policy (GSA).



OFPP	Office of Federal Procurement Policy.
OIRM	Office of Information Resources Management.
O&M	Operations & Maintenance.
OMB	Office of Management and Budget.
O,M&R	Operations, Maintenance, and Readiness.
On-Site	Services to be performed on a government installation or in a specified building.
OPM	Office of Procurement Management (GSA) or Office of Personnel Management.
Options	Sole-source additions to the base contract for services or goods to be exercised at the government's discretion.
OSHA	Occupational Safety and Health Act.
OSI	Open System Interconnect.
OSP	Offshore Procurement.
OTA	Office of Technology Assessment (Congress).
Out-Year	Proposed funding for fiscal years beyond the Budget Year (next fiscal year).
P-I	FY Defense Production Budget.
P3I	Pre-Planned Product Improvement (program in DoD).
PAR	Procurement Authorization Request or Procurement Action Report.
PAS	Pre-Award Survey.
PASS	Procurement Automated Source System.
PCO	Procurement Contracting Officer.
PDA	Principal Development Agency.
PDM	Program Decision Memorandum.
PDR	Preliminary Design Review.
PIR	Procurement Information Reporting.
PME	Performance Monitoring Equipment.
PMP	Purchase Management Plan.
PO	Purchase Order or Program Office.
POM	Program Objective Memorandum.
POSIX	Portable Open System Interconnection Exchange.
POTS	Purchase of Telephone Systems.
PPBS	Planning, Programming, Budgeting System.
PR	Purchase Request or Procurement Requisition.
PRA	Paperwork Reduction Act.
PS	Performance Specification—Alternative to a Statement of Work, when work to be performed can be clearly specified.
QA	Quality Assurance.
QAO	Quality Assurance Office.
QMCS	Quality Monitoring and Control System (DoD software).
QMR	Qualitative Material Requirement (Army).
QPL	Qualified Products List.
QRC	Quick Reaction Capability.
QRI	Quick Reaction Inquiry.
R-I	FY Defense RDT&E Budget.
RAM	Reliability, Availability, and Maintainability.
RC	Requirements Contract.

R&D	Research and Development.
RDA	Research, Development, and Acquisition.
RDD	Required Delivery Date.
RD&E	Research, Development, and Engineering.
RDF	Rapid Deployment Force.
RDT&E	Research, Development, Test, and Engineering.
RFI	Request For Information.
RFP	Request For Proposal.
RFQ	Request For Quotation.
RFTP	Request For Technical Proposals (Two-Step).
ROC	Required Operational Capability.
ROI	Return On Investment.
RTAS	Real-Time Analysis System.
RTDS	Real-Time Display System.
SA	Supplemental Agreement.
SBA	Small Business Administration.
SB Set-Aside	Small Business Set-Aside contract opportunities with bidders limited to certified small businesses.
SCA	Service Contract Act (1964 as amended).
SCN	Specification Change Notice.
SDN	Secure Data Network.
SEC	Securities and Exchange Commission.
SE&I	Systems Engineering and Integration.
SETA	Systems Engineering/Technical Assistance.
SETS	Systems Engineering/Technical Support.
SIBAC	Simplified Intragovernmental Billing and Collection System.
SIMP	Systems Integration Master Plan.
SIOP	Single Integrated Operations Plan.
SNAP	Shipboard Nontactical ADP Program.
Sole Source	Contract award without competition.
Solicitation	Invitation to submit a bid.
SOR	Specific Operational Requirement.
SOW	Statement of Work.
SSA	Source Selection Authority (DoD).
SSAC	Source Selection Advisory Council.
SSEB	Source Selection Evaluation Board.
SSO	Source Selection Official (NASA).
STINFO	Scientific and Technical INFORMATION Program—Air Force/NASA.
STU	Secure Telephone Unit.
SWO	Stop-Work Order.
Synopsis	Brief Description of contract opportunity in CBD after D&F and before release of solicitation.
TA/AS	Technical Assistance/Analysis Services.
TCP/IP	Transmission Control Protocol/Internet Protocol.

TEMPEST	Studies, inspections, and tests of unintentional electromagnetic radiation from computer, communication, command, and control equipment that may cause unauthorized disclosure of information; usually applied to DoD and security agency testing programs.
TILO	Technical and Industrial Liason Office (Qualified Requirement Information Program—Army).
TM	Time and Materials contract.
TOA	Total Obligational Authority (Defense).
TOD	Technical Objective Document.
TR	Temporary Regulation (added to FPR, FAR).
TRACE	Total Risk Assessing Cost Estimate.
TRCO	Technical Representative of the Contracting Offices.
TREAS	Department of Treasury.
TRP	Technical Resources Plan.
TSP	GSA's Teleprocessing Services Program.
TVA	Tennessee Valley Authority.
UCAS	Uniform Cost Accounting System.
USA	U.S. Army.
USAF	U.S. Air Force.
USCG	U.S. Coast Guard.
USMC	U.S. Marine Corps.
USN	U.S. Navy.
U.S.C.	United States Code.
USPS	United States Postal Service.
USRRB	United States Railroad Retirement Board.
VA	Veterans Affairs Department.
VE	Value Engineering.
VHSIC	Very High-Speed Integrated Circuits.
VIABLE	Vertical Installation Automation BaseLine (Army).
VICI	Voice Input Code Identifier.
WBS	Work Breakdown Structure.
WGM	Weighted Guidelines Method.
WIN	WWMCCS Intercomputer Network.
WITS	Washington Interagency Telecommunications System.
WIS	WWMCCS Information Systems.
WS	Work Statement—Offerer's description of the work to be done (proposal or contract).
WWMCCS	World-Wide Military Command and Control System.

**B****General and Industry Acronyms**

ADAPSO	Association of Data Processing Service Organization, now the Computer Software and Services Industry Association.
ADP	Automatic Data Processing.
ADPE	Automatic Data Processing Equipment.
ANSI	American National Standards Institute.
BOC	BELL Operating Company.
CAD	Computer-Aided Design.
CAM	Computer-Aided Manufacturing.
CBEMA	Computer and Business Equipment Manufacturers Association.
CCIA	Computers and Communications Industry Association.
CCITT	Comite Consultatif Internationale de Télégraphique et Téléphonique; Committee of the International Telecommunication Union.
COBOL	Common Business-Oriented Language.
COS	Corporation for Open Systems.
CPU	Central Processor Unit.
DMBS	Data Base Management System.
DRAM	Dynamic Random Access Memory.
EIA	Electronic Industries Association.
EPROM	Erasible Programmable Read-Only-Memory.
IEEE	Institute of Electrical and Electronics Engineers.
ISDN	Integrated Services Digital Networks.
ISO	International Organization for Standardization; voluntary international standards organization and member of CCITT.
ITU	International Telecommunication Union.
LSI	Large-Scale Integration.
MFJ	Modified Final Judgement.
PROM	Programmable Read-Only Memory.
RBOC	Regional Bell Operating Company.
UNIX	AT&T Proprietary Operating System.
UPS	Uninterruptable Power Source.
VAR	Value Added Retailer.
VLSI	Very Large-Scale Integration.
WORM	Write-Once-Read-Many-Times.



## C

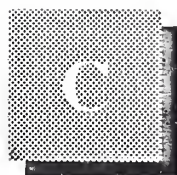
**DISA Acronyms**

The following is a partial list of acronyms used by DISA, or used in the preparation of this report.

ADNET	Anti-Drug Network.
ADTN	Administrative Data Telecommunications Network.
AMD	Acquisition Management Directorate.
AMO	Acquisition Management Organization.
ANICS	Alaskan Interfacility Communications System.
ARC	Acquisition Review Council.
AUTODIN	Automatic Digital Network.
AUTOVON	Automatic Voice Network.
CALS	Computer-aided Acquisition and Logistics Support.
CAS	Center for Agency Services.
CCIS	Command Center Information Systems.
CDSD	Counter-Drug Support Division.
CDTIO	Counter-Drug Telecommunications Integration Office.
CENTCOM	Central Command.
C4S	Center for Command and Control, and Communications Systems (former).
CIM	Center for Information Management or Corporate Information Management.
CINCS	Commanders in Chief.
CHCS	Composite Health Care System.
CNS	Commercial Network Survivability.
CPA	Comptrollers Office.
CSI	Commercial SATCOM Interconnectivity.
CSIF	Communications Services Industrial Fund.
DAB	Defense Acquisition Board.
DABBS	Defense Acquisition Bulletin Board System.
DARIC	Defense Automation Resources Information Center.
DCA	Defense Communications Agency (former).
DCSO	Defense Communications System Organization.
DCTN	Defense Commercial Telecommunications Network.
DDI	Director of Defense Information.
DDN	Defense Data Network.
DDS	Defense Distribution System.
DECCO	Defense Commercial Communications Office.
DFAS	Defense Finance and Accounting Service.
DIPC	Customer Support & Requirements Division.
DIS	Defense Information Systems.
DISA	Defense Information Systems Agency.
DISN	Defense Information Systems Network.
DISP	Defense-wide Information Systems Security Program.
DLA	Defense Logistics Agency.
DMR	Defense Management Review.

DMRD	Defense Management Review Decision.
DMS	Defense Message System.
DMSSC	Defense Medical Systems Support Center.
DNSO	Defense Network Systems Organization.
DSCS	Defense Satellite Communications System.
DSCSN	Defense Satellite Communications System Network.
DSN	Defense Switched Network.
DSSO	Defense Systems Support Organization.
DTN	Defense Transmission Network.
DWASP	DLA Warehouse and Shipping Procedures System.
FACRP	Functional Analysis and Consolidation Review Panel.
FIPR	Federal Information Processing Resource.
IAR	Senior IRM Official.
I-CASE	Integrated Computer-Aided Software Engineering.
IMO	Information Management Organization (former).
ISVS	International Switched Voice Service.
JCS	Joint Chiefs of Staff.
JDSSC	Joint Data Systems Support Center (former).
JIT	Joint Interoperability Test Center.
JOPES	Joint Operations Planning and Execution System.
JT3CA	Joint Tactical Command, Control and Communications Agency.
JWAM	Joint WWMCCS ADP Modernization.
MLS	Multi Level Security.
MNF	Multi-National Force.
NCA	National Command Authorities.
NCC	National Coordinating Center.
NCS	National Communications System.
NETS	National Emergency Telecommunications Service.
NIC	Network Information Center.
NIDS	NMCS Information Display System.
NLP	National Level Program.
NLPPO	National Level Program Procurement Office.
NMCS	National Military Command System.
NS/EP	National Security/Emergency Preparedness.
NTMS	National Telecommunications Management Structure.
NTTC	National Transportable Telecommunications Capability.
OMNCS	Office of the Manager, National Communications System.
OSADBU	Office of Small and Disadvantaged Business Utilization.
PC	Competition Advocate.
PM	Contracts Management.
PPA&E	Planning, Program Analysis and Evaluation Contracts Management.

SADBU	Small and Disadvantaged Business Utilization.
SAMS	Shipboard Nontactical ADP Program (SNAP) Automated Medical System.
SETA	Systems Engineering and Technical Services.
SHARES	Shared Resources.
SORTS	Status of Resources and Training System.
TAMMIS	Theater Army Medical Management Information System.
TEDSS	Telecommunications Emergency Decision Support System.
TMSO	Telecommunications Management Services Office.
V21/TQM	Vision 21/Total Quality Management.
VTC	Video TeleConferencing.
WAM	WWMCCS ADP Modernization Program.
WHCA	White House Communications Agency.
WIN	WWMCCS Intercomputer Network.
WISDIM	Warfighting and Intelligence System for Information Management.
WWMCCS	Worldwide Military Command and Control System.



# Policies, Regulations, and Standards

## A

### OMB Circulars

A-11	Preparation and Submission of Budget Estimates.
A-49	Use of Management and Operating Contracts.
A-71	Responsibilities for the Administration and Management of Automatic Data Processing Activities.
A-109	Major Systems Acquisitions.
A-120	Guidelines for the Use of Consulting Services.
A-121	Cost Accounting, Cost Recovery, and Integrated Sharing of Data Processing Facilities.
A-123	Internal Control Systems.
A-127	Financial Management Systems.
A-130	Management of Federal Information Resources.
A-131	Value Engineering.

## B

### GSA Publications

The FIRMR as published by GSA is the primary regulation for use by federal agencies in the management, acquisition, and use of both ADP and telecommunications information resources.

## C

### DoD Directives

DD-5000.1	Major System Acquisitions.
DD-5000.2	Major System Acquisition Process.
DD-5000.11	DoD Data Elements and Data Codes Standardization Program.
DD-5000.31	Interim List of DoD-Approved, High-Order Languages.
DD-5000.35	Defense Acquisition Regulatory Systems.
DD-5200.1	DoD Information Security Program.
DD-5200.28	Security Requirements for Automatic Data Processing (ADP) Systems.



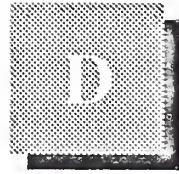
DD-5200.28-M	Manual of Techniques and Procedures for Implementing, Deactivating, Testing, and Evaluating Secure Resource Sharing ADP Systems.
DD-7920.2	Major Automated Information Systems Approval Process.
DD-7935	Automated Data Systems (ADS) Documentation.

**D****Standards**

ADCCP	Advanced Data Communications Control Procedures; ANSI Standard X3.66 of 1979; also NIST FIPS 71.
CCITT G.711	International PCM standard.
CCITT T.0	International standard for classification of facsimile apparatus for document transmission over telephone-type circuits.
DEA-1	Proposed ISO standard for data encryption based on the NIST DES.
EIA RS-170	Monochrome video standard.
EIA RS-170A	Color video standard.
EIA RS-464	EIA PBX standards.
EIA RS-465	Standard for Group III facsimile.
EIA RS-466	Facsimile standard; procedures for document transmission in the General Switched Telephone Network.
EIA RS-232-C	EIA DCE to DTE interface standard using a 25-Pin connector; similar to CCITT V-24.
EIA RS-449	New EIA standard DTE to DCE interface which replaces RS-232-C.
FED-STD 1000	Proposed Federal Standard for adoption of the full OSI reference model.
FED-STD 1026	Federal Data Encryption Standard (DES) adopted in 1983; also FIPS 46.
FED-STD 1041	Equivalent to FIPS 100.
FED-STD 1061	Group II Facsimile Standard (1981).
FED-STD 1062	Federal standard for Group III facsimile; equivalent to EIA RS-465.
FED-STD 1063	Federal facsimile standard; equivalent to EIA RS-466.
FED-STDs 1005, 1005A-1008	Federal Standards for DCE Coding and Modulation.
FIPS 46	NIST Data Encryption Standard (DES).
FIPS 81	DES Modes of Operation.

FIPS 100	NIST Standard for packet-switched networks; subset of 1980 CCITT X.25.
FIPS 107	NIST Standard for local-area networks, similar to IEEE 802.2 and 802.3.
FIPS 146	Government Open Systems Interconnection (OSI) Profile (GOSIP).
FIPS 151	NIST POSIX (Portable Operating System Interface for UNIX) standard.
IEEE 802.2	OSI-Compatible IEEE standard for data-link control in local-area networks.
IEEE 802.3	Local-area network standard similar to Ethernet.
IEEE 802.4	OSI-compatible standard for token bus local-area networks.
IEEE 802.5	Local-area networks standard for token ring networks.
IEEE P1003.1	POSIX standard, similar to FIPS 151.
MIL-STD-188-114C	Physical interface protocol similar to RS-232 and RS-449.
MIL-STD-1777	IP-Internet Protocol.
MIL-STD-1778	TCP - Transmission Control Protocol.
MIL-STD-1780	File Transfer Protocol.
MIL-STD-1781	Simple Mail Transfer Protocol (electronic mail).
MIL-STD-1782	TELNET - virtual terminal protocol.
MIL-STD-1815A	Ada Programming Language Standard.
SVID	UNIX System Interface Definition.
X.12	ANSI standard for Electronic Data Interchange
X.21	CCITT standard for interface between DTE and DCE for synchronous operation on public data networks.
X.25	CCITT standard for interface between DTE and DCE for terminals operating in the packet mode on public data networks.
X.75	CCITT standard for links that interface different packet networks.
X.400	ISO application-level standard for the electronic transfer of messages (electronic mail).





## Related INPUT Reports

### A

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#### Annual Market Analyses

- *Procurement Analysis Reports, FY 1991-FY 1996*

### B

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#### Market Reports

- *Federal Computer Security Market, 1991-1996*
- *Federal Large-Scale Systems Markets, 1988-1993*
- *Federal Software and Related Services Market, 1991-1996*
- *Federal Midsize Systems Market, 1988-1993*
- *Federal Systems Integration Market, 1991-1996*
- *Federal Processing Services/Systems Operations Market, 1991-1996*
- *Federal Telecommunications Market, 1990-1995*
- *Federal Office Information Systems Market, 1988-1993*
- *Federal Microcomputer Market, 1989-1994*
- *NASA Information Systems Market*
- *Department of Veterans' Affairs Information Systems Market*
- *Federal Geographic Information Systems Market, 1991-1996*
- *Federal Electronic Imaging Market, 1991-1996*



- *Federal Professional Services Market, 1991-1996*
- *Defense Logistics Agency Information Services Market*
- *Uncompensated Overtime*
- *Federal Anti-Drug Program*
- *GSA Schedule Practices*

## About INPUT

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### Company Profile

INPUT provides planning information, analysis, and recommendations to managers and executives in the information services industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Continuous-information advisory services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services (software products, processing and network services, systems management, and systems/software maintenance and support).

Many of INPUT's professional staff have more than 20 years' experience in their areas of specialization. Most have held management positions in large organizations, enabling them to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

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### Staff Credentials

INPUT's staff have been selected for their broad background in a variety of functions, including planning, marketing, operations, and information processing. Many of INPUT's professional staff have held executive positions in some of the world's leading organizations, both as vendors and users of information services, in areas such as the following:

- |                            |                         |
|----------------------------|-------------------------|
| • Processing Services      | • Banking and Finance   |
| • Professional Services    | • Insurance             |
| • Turnkey Systems          | • Process Manufacturing |
| • Applications Software    | • Telecommunications    |
| • Field (customer) Service | • Federal Government    |

Educational backgrounds include both technical and business specializations, and many INPUT staff hold advanced degrees.

## U.S. and European Advisory Services

INPUT offers the following advisory services on an annual subscription basis.

### **1. Market Analysis Program—U.S.**

The Market Analysis Program provides up-to-date U.S. information services market analyses, five-year forecasts, trend analyses, vertical/cross-industry market reports, an on-site presentation, hotline inquiry service, and sound recommendations for action. It covers software products, turnkey systems, processing and network services, and professional services markets. It is designed to satisfy the planning and marketing requirements of current and potential information services vendors.

### **2. Market Analysis Program—Europe**

This program is designed to help vendors of software and services with their market planning. It examines the issues in the marketplace, from both a user and a vendor viewpoint. It provides detailed five-year market forecasts to help plan for future growth.

### **3. Vendor Analysis Program—U.S.**

A comprehensive reference service covering more than 400 U.S. information services vendor organizations, VAP is often used for competitive analysis and prescreening of acquisition and joint-venture candidates. Profiles on leading vendors are updated regularly, and hotline inquiry service is provided.

### **4. Vendor Analysis Program—Europe**

This is an invaluable service for gaining competitive information and for seeking targets for partnerships or acquisitions. The service provides profiles on some 450 European software and services vendors. A hotline enquiry service provides details on companies not covered by the profiles.

### **5. Electronic Data Interchange Program**

Focusing on what is fast becoming a major computer/communications market opportunity, this program keeps you well informed. Through monthly newsletters, timely news flashes, comprehensive studies, and telephone inquiry privileges, you will be informed and stay informed about the events and issues impacting this burgeoning market.

### **6. Network Services Program—Europe**

Network services is a fast-growing area of the software and services industry. This program is essential to vendors of EDI, electronic information services, and network products and services, keeping clients informed of the latest developments in the European marketplace.

**7. Systems Integration Program—U.S.**

Focus is on the fast-moving world of systems integration and the provision of complex information systems requiring vendor management and installation of multiple products and services. The program includes an annual market analysis of the U.S. systems integration market, SI vendor profiles and updates, topical market analysis reports, and an annual SI seminar.

**8. Systems Operations Program—U.S.**

This program focuses on the exciting resurgence of the market for outsourcing systems operations. It includes an annual market analysis report of the systems operations market, SO vendor profiles and updates, topical market analysis reports, and an annual SO seminar.

**9. Systems Management Program—Europe**

Systems integration and systems operations (facilities management) are key growth areas for the decade. This program examines these two areas and analyzes current market trends, user needs, and vendor offerings.

**10. Federal Information Systems and Services Program**

This program presents highly specific information on U.S. federal government procurement practices, identifies information services vendor opportunities, and provides guidance from INPUT's experienced Washington professionals to help clients maximize sales effectiveness in the federal government marketplace.

**11. State Information Systems and Services Program (proposed)**

This program presents extensive information on state government spending, procurement policies, identifies key contacts, opportunities, and provides guidance from INPUT's experienced professionals to help clients maximize sales opportunities in the state government marketplace.

**12. Information Systems Program**

ISP is designed for executives of large information systems organizations and provides crucial information for planning, procurement, and management decision making. This program is widely used by both user and vendor organizations.

**13. Customer Service Program—International**

This program provides customer service organization management with data and analyses needed for marketing, technical, financial, and organizational planning. The program pinpoints user perceptions of service received, presents vendor-by-vendor service comparisons, and analyzes and forecasts service markets for large systems, minicomputers, personal computer systems, and third-party maintenance. A monthly newsletter helps clients keep informed of the latest developments in the market.



#### 14. Customer Service Program—Europe

Customer service is an expanding area. Companies are now expanding from hardware service to more software-related maintenance and professional services. This program helps vendors penetrate these new areas and provides guidelines for future market strategy. A monthly newsletter helps clients keep abreast of the latest developments in the market.

#### 15. Worldwide Information Services Market Forecasts

In 1989 INPUT initiated this research study, which provides an international forecast for the information services market.

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#### Customized Advisory Services

In addition to standard continuous-information programs, INPUT will work with you to develop and provide a customized advisory service that meets your unique requirements.

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#### Acquisition Services

INPUT also offers acquisition services that are tailor-made for your requirements. INPUT's years of experience and data base of company information about information systems and services companies have helped many companies in their acquisition processes.

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#### An Effective Combination

INPUT'S Executive Advisory Services are built on an effective combination of research-based studies, client meetings, informative conferences, and continuous client support. Each service is designed to deliver the information you need in the form most useful to you, the client. Executive Advisory Services are composed of *varied combinations of the following products and services:*

##### Research-Based Studies

Following a proven research methodology, INPUT conducts major research studies throughout each program year. Each year INPUT selects issues of concern to management. Topical reports are prepared and delivered throughout the calendar year.

##### Information Service Industry Reports

INPUT's Executive Advisory Services address specific issues, competitive environments, and user expenditures relative to:

Software Products	Professional Services
Processing Services	Turnkey Systems
Network Services	Small-Systems Service
Systems Integration	Third-Party Maintenance
Systems Operations	Large-Systems Service

### **Industry-Specific Market Reports**

Detailed analyses of market trends, forces driving the markets, problems, opportunities, and user expenditures are available for the following sectors:

Discrete Manufacturing	Insurance
Process Manufacturing	Medical
Transportation	Education
Utilities	Business Services
Telecommunications	Consumer Services
Retail Distribution	Federal Government
Wholesale Distribution	State and Local Government
Banking and Finance	Miscellaneous Industries

### **Cross-Industry Market Report**

A separate analysis covers the following cross-industry application areas:

Accounting	Office Systems
Education and Training	Planning and Analysis
Engineering and Scientific	Other Cross-Industry Sectors
Human Resources	

### **Hotline: Client Inquiry Services**

Inquiries are answered quickly and completely through use of INPUT's Client Hotline. Clients may call any INPUT office (San Francisco, New York, Washington D.C., London, or Paris) during business hours or they may call a voicemail service to place questions after hours. This effective Hotline service is the cornerstone of every INPUT Executive Advisory Service.

### **The Information Center**

One of the largest and most complete collections of information services industry data, the Information Center houses literally thousands of up-to-date files on vendors, industry markets, applications, current/emerging technologies, and more. Clients have complete access to the Information Center. In addition to the information contained in its files, the center maintains an 18-month inventory of over 130 major trade publications, vendor consultant manuals, economic data, government publications, and a variety of important industry documents.

### **Access to INPUT Professional Staff**

Direct access to INPUT's staff, many of whom have more than 20 years of experience in the information industry, provides you with continuous research and planning support. When you buy INPUT, you buy experience and knowledge.

**Client Conference**

You can attend INPUT's Client Conference. This event addresses the status and future of the information services industry, the competitive environment, important industry trends potentially affecting your business, the impact of new technology and new service offerings, and more.

You will attend with top executives from many of the industry's leading, fastest-growing, and most successful vendor companies—and with top Information Systems (IS) managers from some of the world's most sophisticated user organizations.

**On-Site Presentation by INPUT Executives**

Many of INPUT's programs offer an informative presentation at your site. Covering the year's research, this session is scheduled at the convenience of the client.

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**Proprietary Research Service**

INPUT conducts proprietary research that meets the unique requirements of an individual client. INPUT's custom research is effectively used:

**For Business Planning**

Planning for new products, planning for business startups, planning for expansion of an existing business or product line—each plan requires reliable information and analysis to support major decisions. INPUT's dedicated efforts and custom research expertise in business planning ensure comprehensive identification and analysis of the many factors affecting the final decision.

**For Acquisition Planning**

Successful acquisition and divestiture of information services companies requires reliable information. Through constant contact with information services vendor organizations and continuous tracking of company size, growth, financials, and management "chemistry," INPUT can provide the valuable insight and analysis you need to select the most suitable candidates.

**For the Total Acquisition Process**

INPUT has the credentials, the data base of company information, and—most importantly—the contacts to assist you with total acquisition and/or partnering relationship processes:

- Due Diligence
- Schedules and Introduction
- Criteria & Definitions
- Retainer and Fee-Based
- Active Search

**For Competitive Analysis**

Knowing marketing and sales tactics, product capabilities, strategic objectives, competitive postures, and strengths and weaknesses of your competition is as critical as knowing your own. The career experience of INPUT's professionals—coupled with INPUT's collection and maintenance of current financial, strategic, tactical, and operational information about more than 400 active companies—uniquely qualifies INPUT to provide the best competitive information available today.

**For Market and Product Analysis**

Developing new products and entering new markets involves considerable investment and risk. INPUT regularly conducts research for clients to identify product requirements, market dynamics, and market growth.

**More About INPUT...**

- More than 5,000 organizations, worldwide, have charted business directions based on INPUT's research and analysis.
- Many clients invest more than \$50,000 each year to receive INPUT's recommendations and planning information.
- INPUT regularly conducts proprietary research for some of the largest companies in the world.
- INPUT has developed and maintains one of the most complete information industry libraries in the world (access is granted to all INPUT clients).
- INPUT clients control an estimated 70% of the total information industry market.
- INPUT analyses and forecasts are founded upon years of practical experience, knowledge of historical industry performance, continuous tracking of day-to-day industry events, knowledge of user and vendor plans, and business savvy.
- INPUT analysts accurately predicted the growth of the information services market—at a time when most research organizations deemed it a transient market. INPUT predicted the growth of the microcomputer market in 1980 and accurately forecasted its slowdown in 1984.



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For details on delivery schedules, client service entitlement, or Hotline support, simply call your nearest INPUT office. Our customer support group will be available to answer your questions.

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